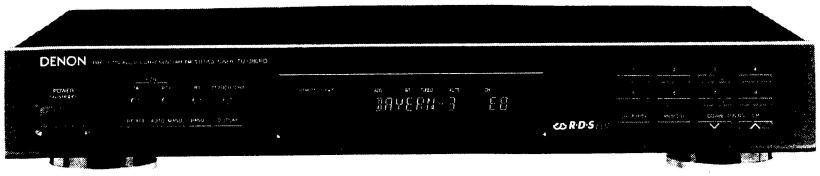
DENON

Hi-Fi Component

SERVICE MANUAL

MODEL TU-380RD

2-BAND AM-FM STEREO TUNER



Europe Model

U.S.A. & Canada Models

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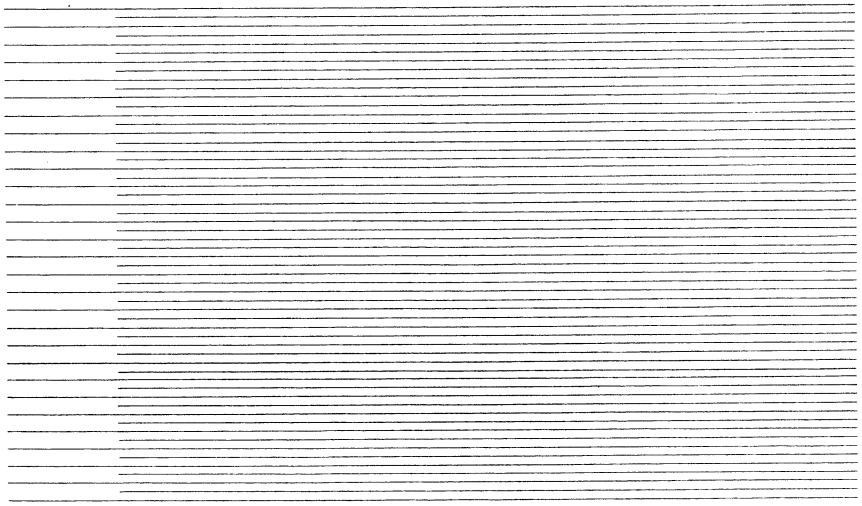
NIPPON COLUMBIA CO., LTD.

DENON

AM-FM STEREO TUNER

TU-380RD (Europe, U.K.)

OPERATING INSTRUCTIONS



"SERIAL NO. _____
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

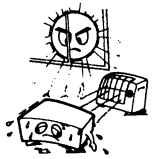
• **NUR FÜR EUROPÄISCHE MODELLE**

Konformitätserklärung

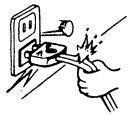
Die DENON Electronic GmbH
Halskestraße 32
40880 Ratingen

Erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh Rundfunkempfänger nach der Amtsblattverfügung 868/1989 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31. 8. 1989) entspricht.

NOTE ON USE / HINWEISE ZUM GEBRAUCH / OBSERVATIONS RELATIVES A L'UTILISATION
NOTE SULL'USO / NOTAS SOBRE EL USO / ALVORENS TE GEBRUIKEN / OBSERVERA
OBSERVAÇÕES QUANTO AO USO

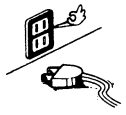


- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine ausreichend Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.
- Evite altas temperaturas
  Permite la suficiente dispersión del calor cuando está instalado en la consola.
- Vermijd hoge temperaturen.
  Zorg voor een degelijk hitteafvoer indien het apparaat op een rek wordt geplaatst.
- Undvik höga temperaturer.
  Se till att det finns möjlighet till god värmeavledning vid montering i ett rack.
- Evite temperaturas altas
  Conceda suficiente dispersão de calor quando o equipamento for instalado numa prateleira.

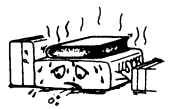


- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Manneggiate il filo di alimentazione con cura.
  Agite per la spina quando scollegate il cavo dalla presa.
- Maneje el cordón de energía con cuidado.
  Sostenga el enchufe cuando desconecte el cordón de energía.
- Hanteer het netsnoer voorzichtig.
  Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld.
- Hantera nätkabeln varsamt.
  Håll i kabeln när den kopplas från eluttaget.
- Manuseie com cuidado o fio condutor de energia.
  Segure a tomada ao desconectar o fio.

- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.
- Mantenga el equipo libre de humedad, agua y polvo.
- Laat geen vochtigheid, water of stof in het apparaat binnendringen.
- Utsätt inte apparaten för fukt, vatten och damm.
- Mantenha o aparelho livre de qualquer umidade, água ou poeira.



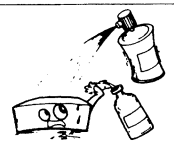
- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.
- Desconecte el cordón de energía cuando no utilice el equipo por mucho tiempo.
- Neem altijd het netsnoer uit het stopkontakt wanneer het apparaat gedurende een lange periode niet wordt gebruikt.
- Koppla ur nätkabeln om apparaten inte kommer att användas i lång tid.
- Desligue o fio condutor de força quando o aparelho não tiver que ser usado por um longo período.



*(For sets with ventilation holes)

- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.
- No obstruya los orificios de ventilación.
- De ventilatieopeningen mogen niet worden beblokkeerd.
- Täpp inte till ventilationsöppningarna.
- Não obstrua os orifícios de ventilação.

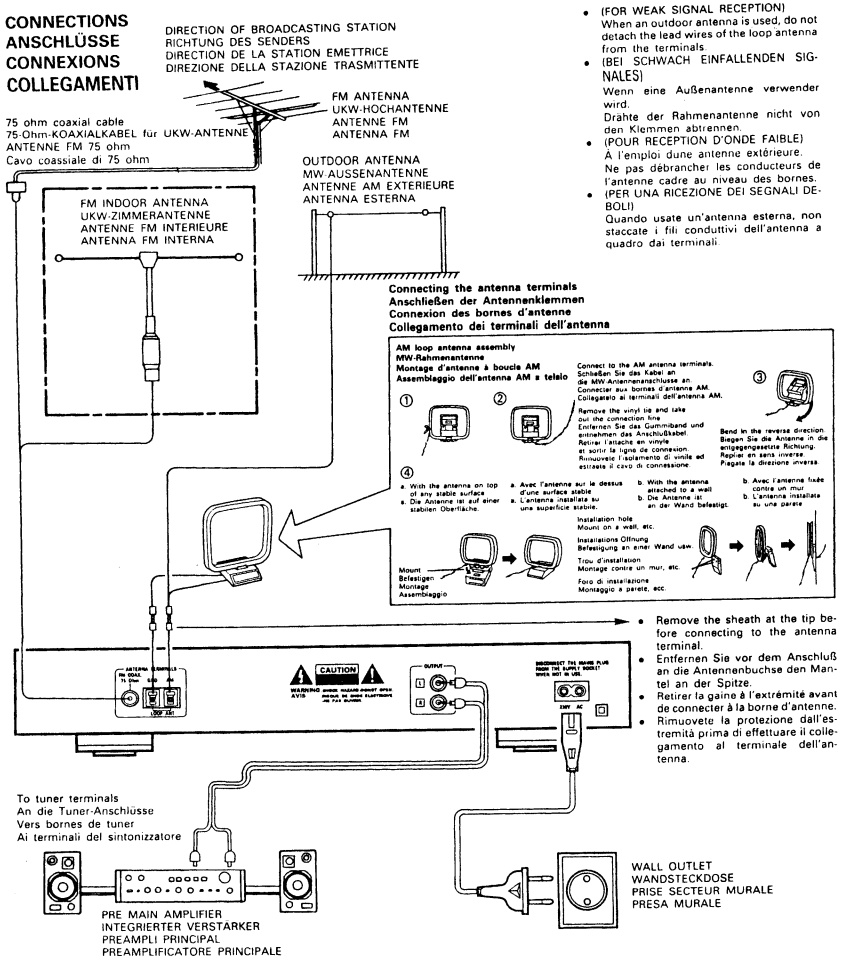
- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E'importante che nessun oggetto è inserito all'interno dell'unità.
- No deje objetos extraños dentro del equipo.
- Laat geen vreemde voorwerpen in dit apparaat vallen.
- Se till att främmande föremål inte tränger in i apparaten.
- Não deixe objetos estranhos no aparelho.



- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi.
- No permita el contacto de insecticidas, gasolina y diluyentes con el equipo.
- Laat geen insektenverdelgende middelen, benzine of verfverdunner met dit apparaat in kontakt komen.
- Se till att inte insektsmedel på spraybruk, bensen och thinner kommer i kontakt med apparatens hölje.
- Não permita que inseticidas, benzina e dissolvente entrem em contacto com o aparelho.

- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, né modificate l'unità in nessun modo.
- Nunca desarme o modifique el equipo de ninguna manera.
- Nooit dit apparaat demonteren of op andere wijze modifiëren.
- Ta inte isär apparaten och försök inte bygga om den.
- Nunca desmonte ou modifique o aparelho de alguma forma.

CONNECTIONS
ANSCHLÜSSE
CONNEXIONS
COLLEGAMENTI


DIRECTION OF BROADCASTING STATION
RICHTUNG DES SENDERS
DIRECTION DE LA STATION EMETTRICE
DIREZIONE DELLA STAZIONE TRASMITTENTE
75 ohm coaxial cable
75-Ohm-KOAXIALKABEL für UKW-ANTENNE
ANTENNE FM 75 ohm
Cavo coassiale di 75 ohm
FM ANTENNA
UKW-HOCHANTENNE
ANTENNE FM
ANTENNA FM
OUTDOOR ANTENNA
MW-AUSSENANTENNE
ANTENNE AM EXTERIEURE
ANTENNA ESTERNA
FM INDOOR ANTENNA
UKW-ZIMMERANTENNE
ANTENNE FM INTERIEURE
ANTENNA FM INTERNA
Connecting the antenna terminals
Anschließen der Antennenklemmen
Connexion des bornes d'antenne
Collegamento dei terminali dell'antenna
AM loop antenna assembly
MW-Rahmenantenne
Montage d'antenne à boucle AM
Assemblaggio dell'antenna AM a telaio
Connect to the AM antenna terminals.
Schließen Sie das Kabel an die MW-Antennenanschlüsse an.
Connecter aux bornes d'antenne AM.
Collegatelo ai terminali dell'antenna AM.
Remove the vinyl tie and take out the connection line.
Entfernen Sie das Gummiband und entnehmen das Anschlußkabel.
Retirer l'attache en vinyle et sortir la ligne de connexion.
Rimuovete l'isolamento di vinile ed estraete il cavo di connessione.
Bend in the reverse direction.
Biegen Sie die Antenne in die entgegengesetzte Richtung.
Replier en sens inverse.
Piegate la direzione inversa.
a. With the antenna on top of any stable surface
a. Die Antenne ist auf einer stabilen Oberfläche.
a. Avec l'antenne sur le dessus d'une surface stable
a. L'antenna installata su una superficie stabile.
b. With the antenna attached to a wall
b. Die Antenne ist an der Wand befestigt.
b. Avec l'antenne fixée contre un mur
b. L'antenna installata su una parete
Mount
Befestigen
Montage
Assemblaggio
Installation hole
Mount on a wall, etc.
Installations Öffnung
Befestigung an einer Wand usw.
Trou d'installation
Montage contre un mur, etc.
Foro di installazione
Montaggio a parete, ecc.
CAUTION
To tuner terminals
An die Tuner-Anschlüsse
Vers bornes de tuner
Ai terminali del sintonizzatore
PRE MAIN AMPLIFIER
INTEGRIERTER VERSTÄRKER
PREAMPLI PRINCIPAL
PREAMPLIFICATORE PRINCIPALE
WALL OUTLET
WANDSTECKDOSE
PRISE SECTEUR MURALE
PRESA MURALE

- (FOR WEAK SIGNAL RECEPTION)
  When an outdoor antenna is used, do not detach the lead wires of the loop antenna from the terminals.
- (BEI SCHWACH EINFALLENDEN SIGNALES)
  Wenn eine Außenantenne verwender wird.
  Drähte der Rahmenantenne nicht von den Klemmen abtrennen.
- (POUR RECEPTION D'ONDE FAIBLE)
  À l'emploi dune antenne extérieure.
  Ne pas débrancher les conducteurs de l'antenne cadre au niveau des bornes.
- (PER UNA RICEZIONE DEI SEGNALI DEBOLI)
  Quando usate un'antenna esterna, non staccate i fili conduttivi dell'antenna a quadro dai terminali.

- Remove the sheath at the tip before connecting to the antenna terminal.
- Entfernen Sie vor dem Anschluß an die Antennenbuchse den Mantel an der Spitze.
- Retirer la gaine à l'extrémité avant de connecter à la borne d'antenne.
- Rimuovete la protezione dall'estremità prima di effettuare il collegamento al terminale dell'antenna.

Note:
- Please keep away AM loop antenna from the metal parts of the back panel.

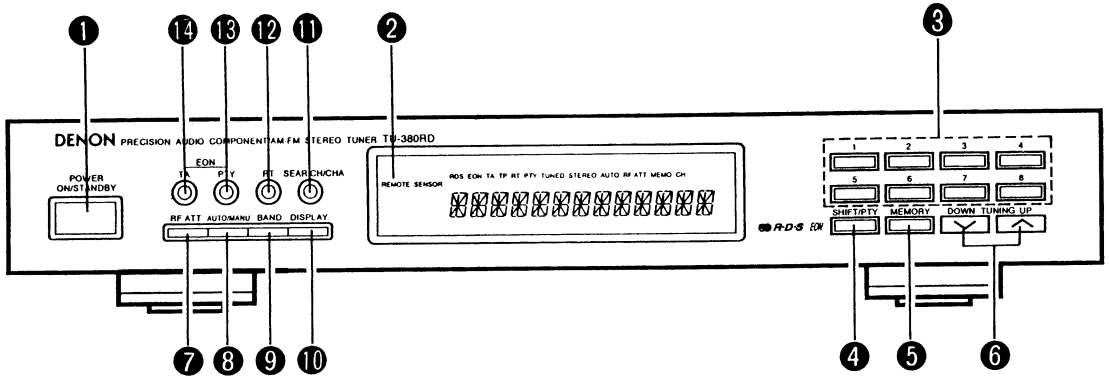
Hinweis:
- Die MW-Rahmenantenne (AM) draf die Metallteile der Geräte-Rückseite nicht berühren.

Remarque:
- Eloigner l'antenne en boucle AM de toute partie métallique du panneau arrière.

Nota:
- Tenete lontana antenna AM a quadro dalle parti metalliche del pannello posteriore.

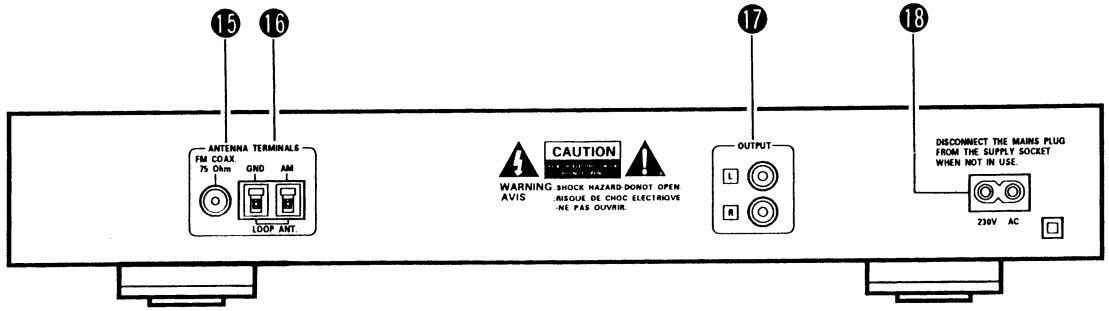
FRONT PANEL
FRONTPLATTE
PANNEAU AVANT
PANNELLO FRONTALE

TABLERO FRONTAL
VOORPANEEL
FRONT PANELEN
PAINEL FRONTAL



REAR PANEL
RÜCKWAND
PANNEAU ARRIERE
IL PANNELLO POSTERIORE

PANEL TRASERO
ACHTERPANEEL
BAKSIDAN
PAINEL TRAZEIRO



DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS (Refer to Page 3.)

FRONT PANEL

❶ **POWER (Power ON/STANDBY button)**
The unit works 2-3 seconds after this switch is turned on.
Whenever the power switch is in th STANDBY state, the apparatus is still connected on AC line voltage.
Please be sure to unplug the cord when you leave home for, say, a vacation.

❷ **REMOTE SENSOR (Remote control sensor)**
This sensor receives the infrared light transmitted from the wireless remote control unit.
For remote control, point the wireless remote control unit at the sensor.
Some of the functions can be operated with the remote control units included with DENON pre-main amplifiers and AV surround amplifiers.

❸ **PRESET CHANNEL (Station button)**
Use these when presetting and recalling stations. Also use these with the SHIFT/PTY button to use a total of 40 preset channels, A (1~8), B (1~8), ... E (1~8).

❹ **SHIFT/PTY button**
Use this button to select the memory blocks, A (1 to 8), B (9 to 16), C (17 to 24), D (25 to 32), or E (33 to 40).
For PTY search and EON PTY, use this button to select the program type. When writing station names, use this button to set the writing position.

❺ **MEMORY (Memory button)**
Frequencies and station names can be stored in the memory. When this button is pressed, the "MEMO" indicator on the display flashes for 10 seconds. Use the SHIFT button and the channel buttons during this time to designate the desired preset channel.

❻ **TUNING (Tuning buttons)**
Use these to change the received frequency to a higher frequency (UP) or a lower frequency (DOWN).
When writing station names, use these buttons to select the letters. (Refer to Page 5.)

❼ **RF ATT (RF attenuator button)**
This button turns the RF attenuator on and off. When the RF attenuator is on, the "RF ATT" indicator on the display lights, and the antenna input signals are attenuated before entering the front end. Turn the RF attenuator on to receive local stations and when connecting to a cable system. Turn the RF attenuator off to receive weak signals.
This mode only functions in the FM band.
This mode setting is stored in the preset memory.

❽ **AUTO MUTE/MANU (Tuning Mode Button)**
This switches between auto and manual tuning.
Auto tuning: When the UP button is pressed, the radio is tuned automatically to a higher frequency. Press the DOWN button to tune to a lower frequency. Use this position to eliminate noise when no signals or weak signals are being received.
Manual tuning: In this position, the radio can be tuned manually. Reception is automatically monaural when in the manual mode.

❾ **BAND (Band Button)**
Selects FM or MW(AM).

❿ **DISPLAY (Display mode selector button)**
This button is used to select the display mode.
The mode changes as follows each time the button is pressed:
- Tuning frequency
- Input character
- Programme service name (PS)
- Programme type (PTY)
- Clock time (CT)

The following may be displayed if the signals are weak or no RDS service is available. This is not a malfunction.
"NO PS"
"NO PTY"
"NO TIME DATA"
NOTE: The programme type, programme service name and clock time are not displayed in the MW (AM) band.
"NO TIME DATA" may be displayed within the first minute after a station is tuned in, but this is not a malfunction. If time data is being broadcast, the time can be displayed after one minute has passed.

⓫ **SEARCH/CHA (Search character mode button)**
This button is used for the RDS search (refer to page 10), PTY search (refer to page 11) and TP search (refer to page 11) operations, and to input the station name (refer to page 10).

⓬ **RT (Radio Text) button**
This button is used for displaying radio text messages. When this button is pressed while the station currently tuned in is offering a radio text message service, the message scrolls on the display.
This mode turns on and off each time the button is pressed.

⓭ **EON PTY button**
When a programme of the specified programme type (PTY) begins on a station in the same network as the station currently tuned in, that network station is automatically tuned in, and the previous station is tuned back in once a programme of a different programme type begins.
This button is used to turn this mode on and off.
If the station switches from the current station to the network station broadcasting the specified programme type when this mode is on but the network station cannot be received properly due to weak signals, the previous station is immediately tuned back in. (Refer to Page 12.)

⓮ **EON TA button**
When a traffic announcement begins on a station in the same network as the station currently tuned in, that network station is automatically tuned in, and the previous station is tuned back in once the traffic announcement is over.
This button is used to turn this mode on and off.
If the station switches from the current station to the network station when this mode is on but the network station cannot be received properly due to weak signals, the previous station is immediately tuned back in. (Refer to Page 11.)

CAUTION:
1. Whenever the power switch is in the STANDBY position, the unit is still connected on AC line voltage. Please be sure to unplug the cord when you leave home for, say, a vacation.
2. Noise may be generated if a near-by television set is on during MW (AM), FM broadcasting reception. The tuner should be used as far away from a television as possible.
3. Effective period of memory back-up is about a month under normal temperature.

REAR PANEL

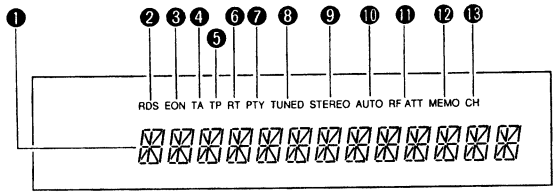
⓯ **FM ANT (FM antenna terminals)**
75-ohm coaxial cables can be connected to these terminals.
For the connection procedure, see the section "CONNECTIONS". (Refer to Page 6)

⓰ **AM ANT (AM antenna terminals)**
Connect the included AM loop antenna. (Refer to page 6 for connections.)
Connect this terminal when a medium wave outdoor antenna is used.

⓱ **OUTPUT (Output terminals)**
Connect these to the TUNER input terminals on the pre-main amplifier.

⓲ **AC INLET**
Connect the included AC cord here.

DISPLAY



❶ **16-segment display**
This displays the frequency, station name, program type, etc.

❷ **RDS indicator**
This lights when receiving RDS broadcasts, and flashes during the RDS search.

❸ **EON indicator**
This lights when receiving EON information.

❹ **TA indicator**
This lights when the EON TA button is pressed and when a traffic announcement is being received.

❺ **TP indicator**
This lights when receiving a station broadcasting traffic announcements and flashes during the TP search operation.

❻ **RT indicator**
This lights when the RT button is pressed.

❼ **PTY indicator**
This lights when the EON PTY button is pressed, and flashes during the PTY search operation.

❽ **TUNED indicator**
This lights when a station is properly tuned in.

❾ **STEREO indicator**
This lights when receiving stereo broadcasts. It remains off when receiving AM broadcasts.

❿ **AUTO indicator**
This indicates the tuning mode. It lights in the auto mode, and remains off in the manual mode.

⓫ **RF ATT indicator**
This lights when the RF attenuator is turned on (RF ATT ❼).

⓬ **MEMO indicator**
This flashes for 10 seconds when the MEMORY button ❺ is pressed, and flashes during the auto preset memory operation.

⓭ **CH indicator**
This lights when the preset channel number is displayed, and flashes during the auto preset memory operation.

Using the Various Functions

1. Using the auto preset memory function

This function automatically stores the FM stations which can be received in the area in which the set is being used in the preset memory. Use this function so that the RDS functions can be used more effectively. Also note that the channel memories can be changed at will even after the preset stations have been stored with this function.

Operation

1. Connect the FM antenna and set it so that FM stations can be received.
2. Press the POWER button to turn on the power while holding in the MEMORY button.
3. Searching begins automatically, and stations are stored in the preset memory in order, beginning from channel A1. (The operation automatically stops once 40 stations have been set in the memory.)

2. Storing new stations at the preset channels

The reception frequency, RDS service information, Tuning mode, RF ATT mode and input characters can be stored at the different channel memories.
When this operation is performed, the station already stored in that channel memory using the auto preset memory function is cleared.

Operation

1. Press the MEMORY button. (The MEMO indicator flashes.)
2. Use the SHIFT/PTY button to select the block, A to E.
3. Use buttons 1 to 8 to select the channel at which the station is to be stored.

3. Recalling preset channels

Use the following operation to recall preset channels:

Operation

1. Use the SHIFT/PTY button to select the block, A to E.
2. Use buttons 1 to 8 to select the channel at which to store the station.

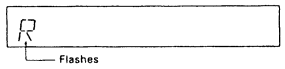
4. Inputting characters

Any characters can be input (up to 8 characters).
The input characters can be stored at the preset channels.

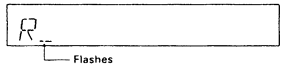
Operation

1. Press the SEARCH/CHA button four times.
   (The cursor flashes at the first place.)

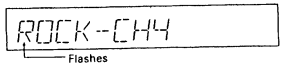
2. Use the UP or DOWN button to select the character for the first place.
   (The selected character flashes.)



3. Press the SHIFT/PTY button to move the cursor to the next place.
   (The cursor flashes at the second place.)



4. Repeat steps 2 and 3 above to input up to 8 characters.



5. The characters are set five seconds after the input procedure is finished. The input characters can be stored in the memory.
   To keep the input characters, be sure to store them in a channel memory.

6. Clearing characters
   1. Recall the character you want to clear.
   2. Press the SEARCH/CHA button 4 times until the character at the first place flashes.
   3. Then press the SHIFT/PTY button for at least 2 seconds. The current character will then be cleared.

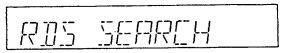
Using the RDS Functions (for FM only)

1. RDS Search

Use this to automatically search and stop at stations offering RDS services.

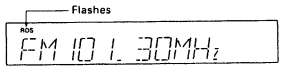
Operation

1. Press the SEARCH/CHA button once.



2. Press the UP or DOWN button.
   (Searching begins.)

3. Searching begins again if the UP or DOWN button is pressed while the RDS indicator is flashing.



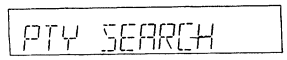
4. If no other RDS station is found when all the frequencies are searched, "NO RDS" is displayed.

2. PTY Search

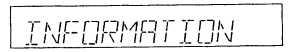
Use this to automatically search and stop at stations broadcasting the specified programme type (PTY).

Operation

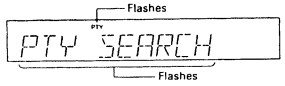
1. Press the SEARCH/CHA button twice.



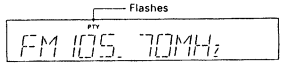
2. Use the SHIFT/PTY button to select the programme type.



3. Press the UP or DOWN button.
   (Searching begins.)



4. Searching begins again if the UP or DOWN button is pressed while the PTY indicator is flashing.



5. If no other station broadcasting the designated programme type is found when all the frequencies are searched, "NO PROGRAMME" is displayed.

List of PTY (Programme Type) Displays

1. NEWS	9. VARIED
2. AFFAIRS	10. POP MUSIC
3. INFORMATION	11. ROCK MUSIC
4. SPORT	12. M.O.R. MUSIC
5. EDUCATION	13. L-CLASSICS (Light classics)
6. DRAMA	14. S-CLASSICS (Serious classics)
7. CULTURE	15. OTHER MUSIC
8. SCIENCE	31. ALARM

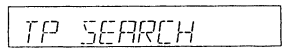
NOTE: ALARM cannot be selected during the PTY search operation and when in the EON PTY mode.

3. TP Search

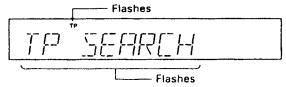
Use this to automatically search and stop at stations which broadcast traffic announcements (even if the station is not currently broadcasting a traffic announcement.)

Operation

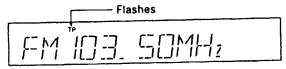
1. Press the SEARCH/CHA button three times.



2. Press the UP or DOWN button.
   (Searching begins.)



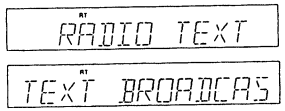
3. Searching begins again if the UP or DOWN button is pressed while the TP indicator is flashing.



4. If no other TP station is found when all the frequencies are searched, "NO PROGRAMME" is displayed.

4. Radio Text (RT)

When this button is pressed while the station currently tuned in is offering a radio text message service, the message scrolls on the display.
(The RT indicator lights when the RT button is pressed.)



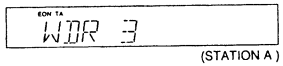
("NO TEXT DATA" is displayed if no radio text message is being broadcast.)

5. EON TA

When an RDS station is broadcasting RDS information on other stations within the same network and a traffic announcement begins on another station in the same network based on this information (EON = Enhanced Other Network), that network station is automatically tuned in. The previous station is tuned back in once the traffic announcement is over.

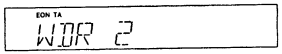
Operation

1. Press the EON TA button.
   (The TA indicator lights.)



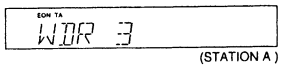
(STATION A)

(When a traffic announcement starts, that station is automatically tuned in.)



(STATION B)

(When the traffic announcement is over, the previous station is tuned back in.)



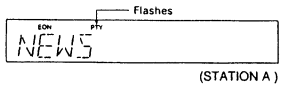
(STATION A)

6. **EON PTY**

When an RDS station is broadcasting RDS information on other stations within the same network and a programme of the specified programme type (PTY) begins on a station in the same network, that network station is automatically tuned in. Use this function to tune in broadcasts of the desired programme type with priority.

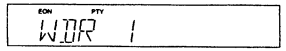
Operation

- Press the EON PTY button, and use the SHIFT/PTY button to select the programme type.



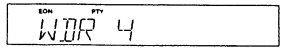
(STATION A)

This mode is set five seconds after the programme type is selected.



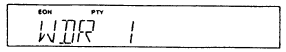
(STATION A)

(When a programme of the specified programme type begins on a station in the same network, that station is tuned in.)



(STATION B)

(The previous station is tuned back in once a programme of a different programme type begins.)



(STATION A)

- To change the programme type, first press the EON PTY button to cancel the EON PTY mode then set it again.

NOTE:

1. Be sure to turn the EON TA and EON PTY modes off when recording programmes.
2. In the EON TA and EON PTY modes, if the station is switched from the current station to another station in the network but the signals of that network station are weak and it cannot be tuned in properly, "WEAK SIGNAL" is displayed and the original station is immediately tuned back in.
3. In the EON TA mode, the station does not switch to another station in the network if the current station is broadcasting a traffic announcement.
4. In the EON PTY mode, the station does not switch to another station in the network if the current station is broadcasting a programme of the same programme type.
5. Since the RDS services offered differ from station to station, some RDS functions may not operate for some stations, but this is not a malfunction.

DENON

AM-FM STEREO TUNER

TU-380RD (U.S.A., Canada)

OPERATING INSTRUCTIONS

"SERIAL NO. _____
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

• FOR U.S.A. & CANADA MODEL ONLY

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

• POUR LES MODELES AMERICAINS ET CANADIENS UNIQUEMENT

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

SAFETY INSTRUCTIONS

1. Read Instructions – All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warnings – All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions – All operating and use instructions should be followed.
5. Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization – Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

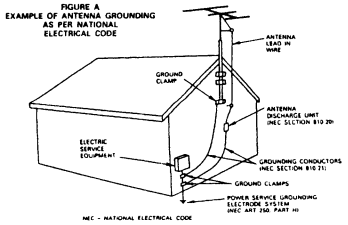
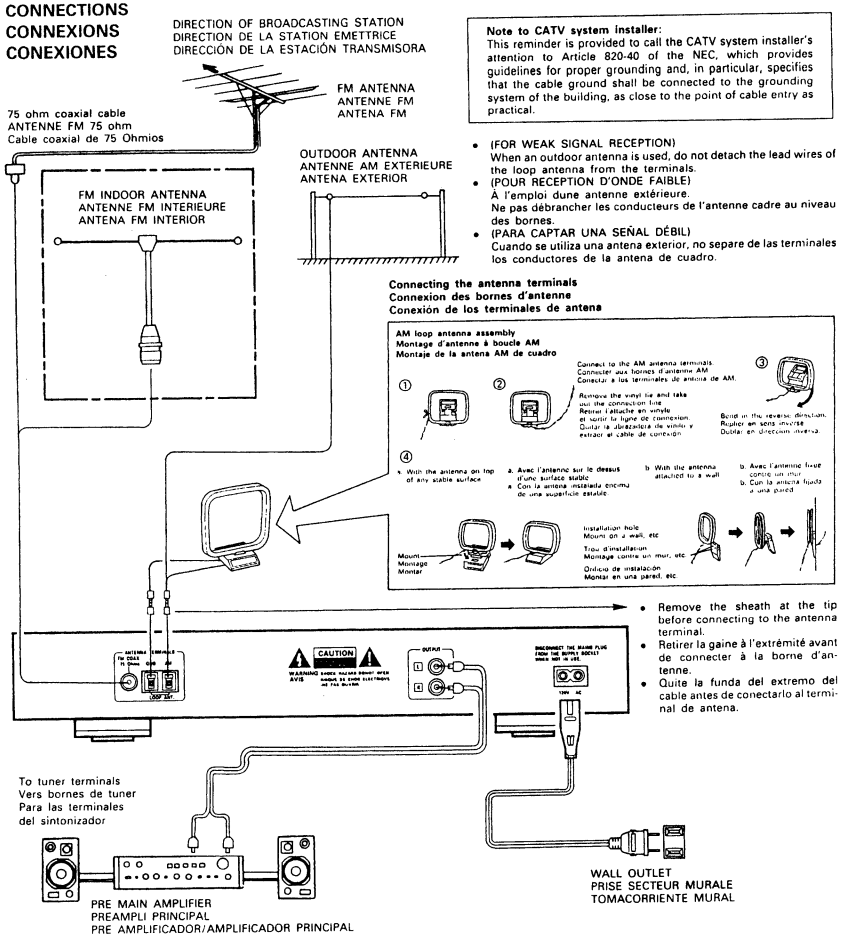


FIGURE A
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE
ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)
NEC - NATIONAL ELECTRICAL CODE

12. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
14. Cleaning – The appliance should be cleaned only as recommended by the manufacturer.
15. Power Lines – An outdoor antenna should be located away from power lines.
16. Outdoor Antenna Grounding – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
17. Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
18. Object and Liquid Entry – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
19. Damage Requiring Service – The appliance should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.
20. Servicing – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

CONNECTIONS
CONNEXIONS
CONEXIONES



Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

- (FOR WEAK SIGNAL RECEPTION)
  When an outdoor antenna is used, do not detach the lead wires of the loop antenna from the terminals.
- (POUR RECEPTION D'ONDE FAIBLE)
  À l'emploi dune antenne extérieure.
  Ne pas débrancher les conducteurs de l'antenne cadre au niveau des bornes.
- (PARA CAPTAR UNA SEÑAL DÉBIL)
  Cuando se utiliza una antena exterior, no separe de las terminales los conductores de la antena de cuadro.

- Remove the sheath at the tip before connecting to the antenna terminal.
- Retirer la gaine à l'extrémité avant de connecter à la borne d'antenne.
- Quite la funda del extremo del cable antes de conectarlo al terminal de antena.

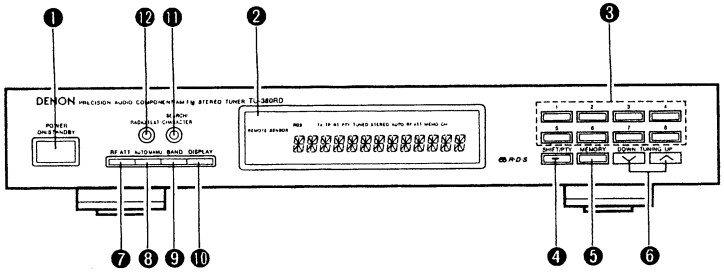
Note:
- Please keep away AM loop antenna from the metal parts of the back panel.

Remarque:
- Eloigner l'antenne en boucle AM de toute partie métallique du panneau arrière.

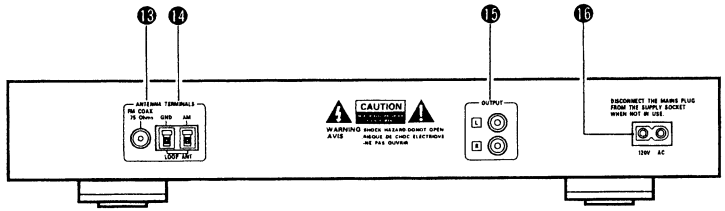
Nota:
- Por favor, mantenga alejada la antena de cuadro AM, de las partes metálicas del panel posterior.

DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS

FRONT PANEL



REAR PANEL



❶ **POWER (Power ON/STANDBY button)**
The unit works 2-3 seconds after this switch is turned on.
Whenever the power switch is in the STANDBY state, the apparatus is still connected on AC line voltage.
Please be sure to unplug the cord when you leave home for, say, a vacation.

❷ **REMOTE SENSOR (Remote control sensor)**
This sensor receives the infrared light transmitted from the wireless remote control unit.
For remote control, point the wireless remote control unit to the sensor.
Some of the functions can be operated with the remote control units included with DENON pre-main amplifiers and AV surround amplifiers.

❸ **PRESET CHANNEL (Station button)**
Use these when presetting and recalling stations. Also use these with the SHIFT/PTY button to use a total of 40 preset channels; A (1~8), B (1~8), ... E (1~8).

❹ **SHIFT/PTY button**
Use this button to select the memory blocks, A (1 to 8), B (1 to 8), C (1 to 8), D (1 to 8), or E (1 to 8).
For PTY search, use this button to select the program type.
When writing station names, use this button to set the writing position.

❺ **MEMORY (Memory button)**
Frequencies and station names can be stored in the memory. When this button is pressed, the "MEMO" indicator on the display flashes for 10 seconds. Use the SHIFT/PTY button and the preset channel buttons during this time to designate the desired preset channel.

❻ **TUNING (Tuning buttons)**
Use these to change the received frequency to a higher frequency (UP) or a lower frequency (DOWN).
When writing station names, use these buttons to select the letters. (Refer to Page 4.)

❼ **RF ATT (RF attenuator button)**
This button turns the RF attenuator on and off. When the RF attenuator is on, the "RF ATT" indicator on the display lights, and the antenna input signals are attenuated before entering the front end. Turn the RF attenuator on to receive local stations and when connecting to a cable system. Turn the RF attenuator off to receive weak signals.
This mode only functions in the FM band.
This mode setting is stored in the preset memory.

❽ **AUTO/MANU (Tuning Mode Button)**
This switches between auto and manual tuning.
Auto tuning: When the UP button is pressed, the radio is tuned automatically to a higher frequency. Press the DOWN button to tune to a lower frequency. Use this position to eliminate noise when no signals or weak signals are being received.
Manual tuning: In this position, the radio can be tuned manually. Reception is automatically monaural when in the manual mode.

❾ **BAND (Band Button)**
Selects FM or AM.

❿ **DISPLAY (Display mode selector button)**
This button is used to select the display mode.
The mode changes as follows each time the button is pressed:
- Tuning frequency
- Input character
- Programme service name (PS)
- Programme type (PTY)
- Clock time (CT)

The following may be displayed if the signals are weak or no RDS service is available. This is not a malfunction.
"NO PS"
"NO PTY"
"NO TIME DATA"
NOTE: The programme type, programme service name and clock time are not displayed in the AM band.
"NO TIME DATA" may be displayed within the first minute after a station is tuned in, but this is not a malfunction. If time data is being broadcast, the time can be displayed after one minute has passed.

⓫ **SEARCH/CHARACTER (Search character mode button)**
This button is used for the RDS search (refer to page 8), PTY search (refer to page 9) and TP search (refer to page 9) operations, and to input the station name (refer to page 8).

⓬ **RADIO TEXT button**
This button is used for displaying radio text messages.
When this button is pressed while the station currently tuned in is offering a radio text message service, the message scrolls on the display.
This mode turns on and off each time the button is pressed.

CAUTION:
1. Whenever the power switch is in the STANDBY position, the unit is still connected on AC line voltage. Please be sure to unplug the cord when you leave home for, say, a vacation.
2. Noise may be generated if a near-by television set is on during AM, FM broadcasting reception. The tuner should be used as far away from a television as possible.
3. Effective period of memory back-up is about a month under normal temperature.

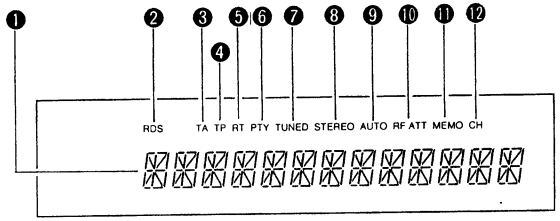
⓭ **FM ANT (FM antenna terminals)**
75-ohm coaxial cables can be connected to these terminals.
For the connection procedure, see the section "CONNECTIONS". (Refer to Page 5)

⓮ **AM ANT (AM antenna terminals)**
Connect the included AM loop antenna. (Refer to page 5 for connections.)
Connect this terminal when a medium wave outdoor antenna is used.

⓯ **OUTPUT (Output terminals)**
Connect these to the TUNER input terminals on the pre-main amplifier.

⓰ **AC INLET**
Connect the included AC cord here.

DISPLAY



❶ **16-segment display**
This displays the frequency, station name, program type, etc.

❷ **RDS indicator**
This lights when receiving RDS broadcasts, and flashes during the RDS search.

❸ **TA indicator**
Lights when receiving traffic announcement.

❹ **TP indicator**
This lights when receiving a station broadcasting traffic announcements and flashes during the TP search operation.

❺ **RT indicator**
This lights when the RADIO TEXT button is pressed.

❻ **PTY indicator**
Flashes during the PTY search operation.

❼ **TUNED indicator**
This lights when a station is properly tuned in.

❽ **STEREO indicator**
This lights when receiving stereo broadcasts. It remains off when receiving AM broadcasts.

❾ **AUTO indicator**
This indicates the tuning mode. It lights in the auto mode, and remains off in the manual mode.

❿ **RF ATT indicator**
This lights when the RF attenuator is turned on (RF ATT ❼).

⓫ **MEMO indicator**
This flashes for 10 seconds when the MEMORY button ❺ is pressed, and flashes during the auto preset memory operation.

⓬ **CH indicator**
This lights when the preset channel number is displayed, and flashes during the auto preset memory operation.

Using the Various Functions

1. Using the auto preset memory function

This function automatically stores the FM stations which can be received in the area in which the set is being used in the preset memory. Use this function so that the RDS functions can be used more effectively.

Operation

1. Connect the FM antenna and set it so that FM stations can be received.
2. Press the POWER button to turn on the power while holding in the MEMORY button.
3. Searching begins automatically, and stations are stored in the preset memory in order, beginning from channel A1. (The operation automatically stops once 40 stations have been set in the memory.)

2. Storing new stations at the preset channels

The reception frequency, RDS service information, Tuning mode, RF ATT mode and input characters can be stored at the different channel memories.
When this operation is performed, the station already stored in that channel memory using the auto preset memory function is cleared.

Operation

1. Press the MEMORY button. (The MEMO indicator flashes.)
2. Use the SHIFT/PTY button to select the block, A to E.
3. Use buttons 1 to 8 to select the channel at which the station is to be stored.

3. Recalling preset channels

Use the following operation to recall preset channels:

Operation

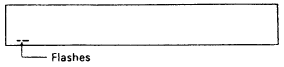
1. Use the SHIFT/PTY button to select the block, A to E.
2. Use buttons 1 to 8 to select the channel at which to store the station.

4. Inputting characters (writing station names)

Any characters can be input (up to 8 characters).
The input characters can be stored at the preset channels. (Refer to page 4)

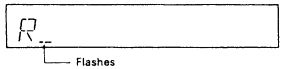
Operation

1. Press the SEARCH/CHARACTER button four times. (The cursor flashes at the first place.)

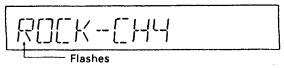


2. Use the UP or DOWN button to select the character for the first place. (The selected character flashes.)

3. Press the SHIFT/PTY button to move the cursor to the next place. (The cursor flashes at the second place.)



4. Repeat steps 2 and 3 above to input up to 8 characters.



5. The characters are set five seconds after the input procedure is finished.
To keep the input characters, be sure to store them in a channel memory.

6. Clearing characters
   1. Recall the character you want to clear.
   2. Press the SEARCH/CHARACTER button 4 times until the character at the first place flashes.
   3. Then press the SHIFT/PTY button for at least 2 seconds. The current characters will then be cleared.

5. Initialization of the Microprocessor

In the rare event of an incorrect display or erroneous operation, the microprocessor can be initialized in order to return the system to normal. Note that the contents of the preset memory will be lost when this operation is conducted.

Operation

1. Disconnect the AC power cord and then reconnect it while depressing buttons 1 and 7 of the set.
2. Check that the display changes repeatedly and release your fingers from the buttons.
3. Then entire memory contents will be lost and the microprocessor will be initialized.

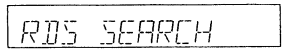
Using the RDS Functions (for FM only)

1. RDS Search

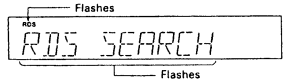
Use this to automatically search and stop at stations offering RDS services.

Operation

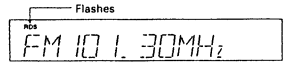
1. Press the SEARCH/CHARACTER button once.



2. Press the UP or DOWN button. (Searching begins.)



3. Searching begins again if the UP or DOWN button is pressed while the RDS indicator is flashing.



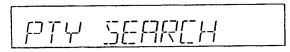
4. If no other RDS station is found when all the frequencies are searched, "NO RDS" is displayed.

2. PTY Search

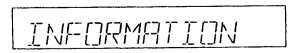
Use this to automatically search and stop at stations broadcasting the specified programme type (PTY).

Operation

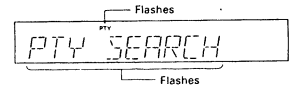
1. Press the SEARCH/CHARACTER button twice.



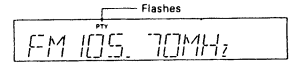
2. Use the SHIFT/PTY button to select the programme type.



3. Press the UP or DOWN button. (Searching begins.)



4. Searching begins again if the UP or DOWN button is pressed while the PTY indicator is flashing.



5. If no other station broadcasting the designated programme type is found when all the frequencies are searched, "NO PROGRAMME" is displayed.

List of PTY (Programme Type) Displays

1.	NEWS	13.	NOSTALGIA
2.	INFORMATION	14.	JAZZ
3.	SPORTS	15.	CLASSICAL
4.	TALK	16.	R+B
5.	ROCK	17.	SOFT R+B
6.	CLS ROCK	18.	LANGUAGE
7.	ADULT HITS	19.	REL MUSIC
8.	SOFT ROCK	20.	REL TALK
9.	TOP 40	21.	PERSONALITY
10.	COUNTRY	22.	PUBLIC
11.	OLDIES	31.	ALERT
12.	SOFT		

NOTE: 1. "ALERT" will flash on the display when the unit receives the Emergency Programme Type Code (PTY31) from an RDS station.
This feature may not operate properly if the signal from the RDS station is too weak or is subjected to interference.
2. "ALERT" cannot be selected during the PTY search operation.

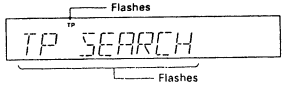
3. TP Search

Use this to automatically search and stop at stations which broadcast traffic announcements (even if the station is not currently broadcasting a traffic announcement.)

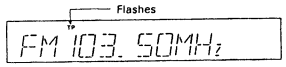
Operation

1. Press the SEARCH/CHARACTER button three times.

2. Press the UP or DOWN button. (Searching begins.)



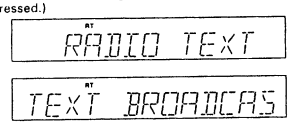
3. Searching begins again if the UP or DOWN button is pressed while the TP indicator is flashing.



4. If no other TP station is found when all the frequencies are searched, "NO PROGRAMME" is displayed.

4. Radio Text

When this button is pressed while the station currently tuned in is offering a radio text message service, the message scrolls on the display.
(The RT indicator lights when the RADIO TEXT button is pressed.)



("NO TEXT DATA" is displayed if no radio text message is being broadcast.)

NOTE: 1. Since the RDS services offered differ from station to station, some RDS functions may not operate for some stations, but this is not a malfunction.
2. This unit may not identify RDS stations as such if the paging station provides multiple RDS data. Tuning may not stop at such stations during the RDS search, PTY search and TP search operations.

RDS Emergency Alert Feature

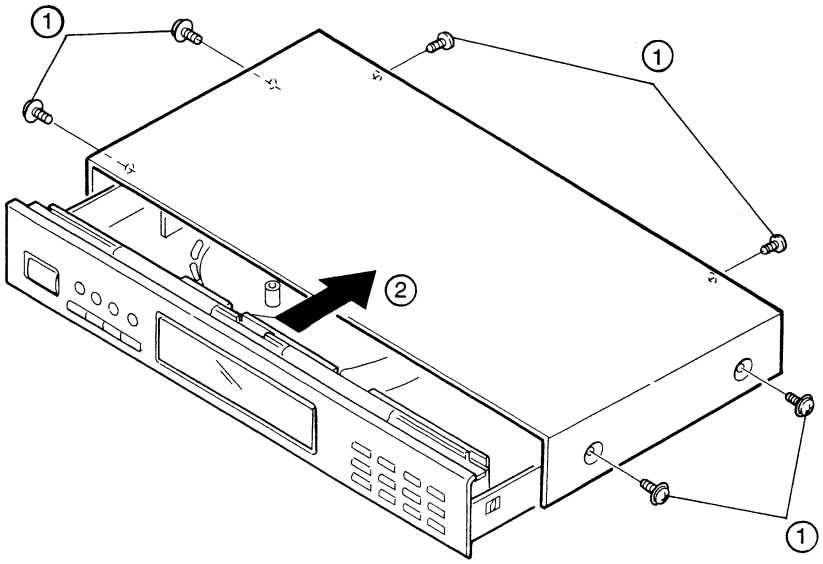
The RDS Emergency Alert Feature is activated by a signal sent at the sole discretion of the RDS broadcaster. The RDS Emergency Alert Feature is included in this product for the convenience of the consumer, and is not intended to augment or replace the Official Emergency Broadcast System as administered by the Federal Communications Commission. For this reason, Nippon Columbia Co. and it's Subsidiaries, refuse all Warranties, claims of merchantability or fitness, or liabilities, whether incidental, consequential or otherwise, related to, either directly or indirectly, the operation or lack of operation of this feature. This exclusion applies to any and/or all Nippon Columbia Co. Products, whether present or future, that implement, in any form or variation, the RDS Emergency Alert Feature.

REMOVAL OF EACH SECTION

(To assemble, follow these procedures in reverse order.)

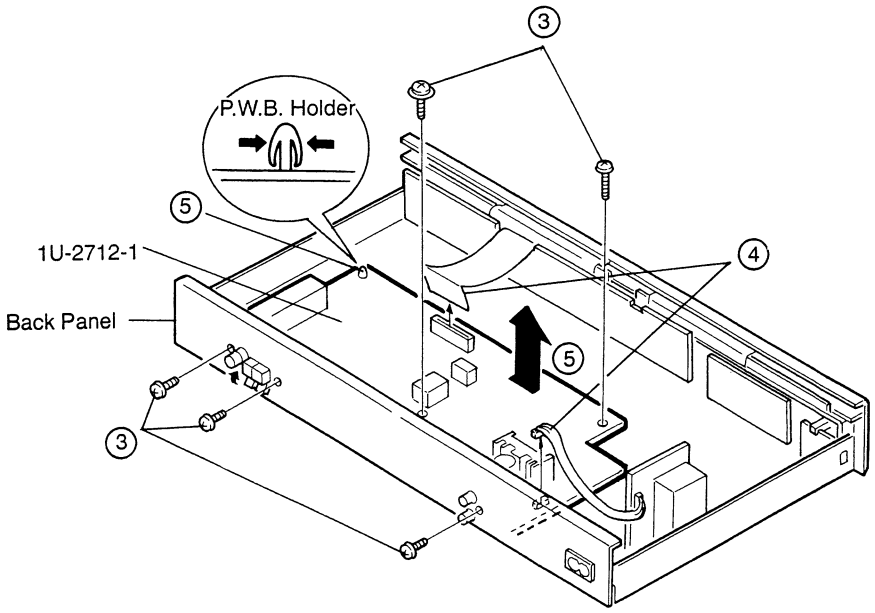
● Removing the Top Cover

① Removing the six top cover fixing screws (four on the sides and two on the back).
② Slide the top cover to the back and remove it.



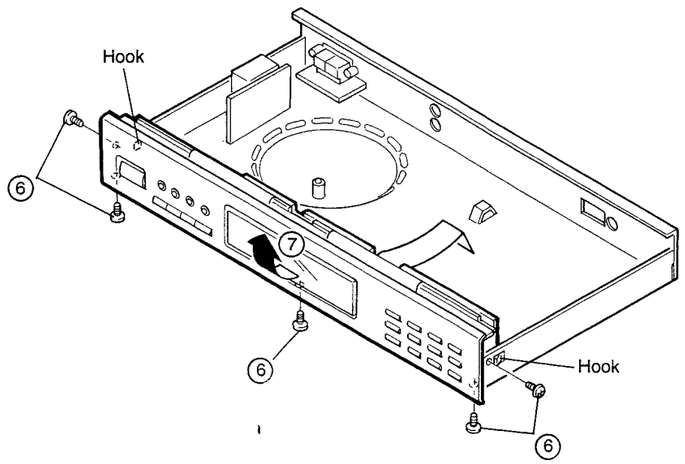
● Removing the Main Circuit Board (1U-2712-1)

③ Remove the three screws and two screws fixing P.W.board.
④ Disconnect the two connectors.
⑤ Using radio pliers, grasp the two circuit board holders and remove, and lift the P.W.board to arrow direction.

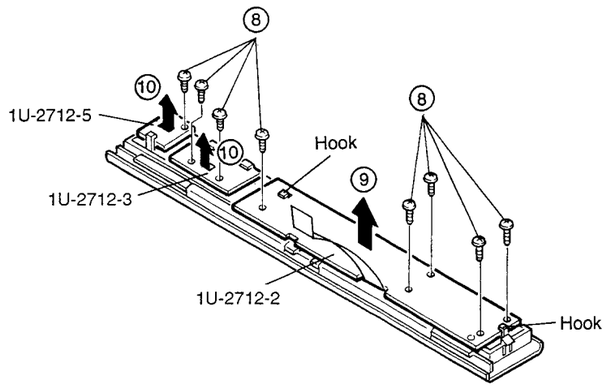


● Removing the Front Panel

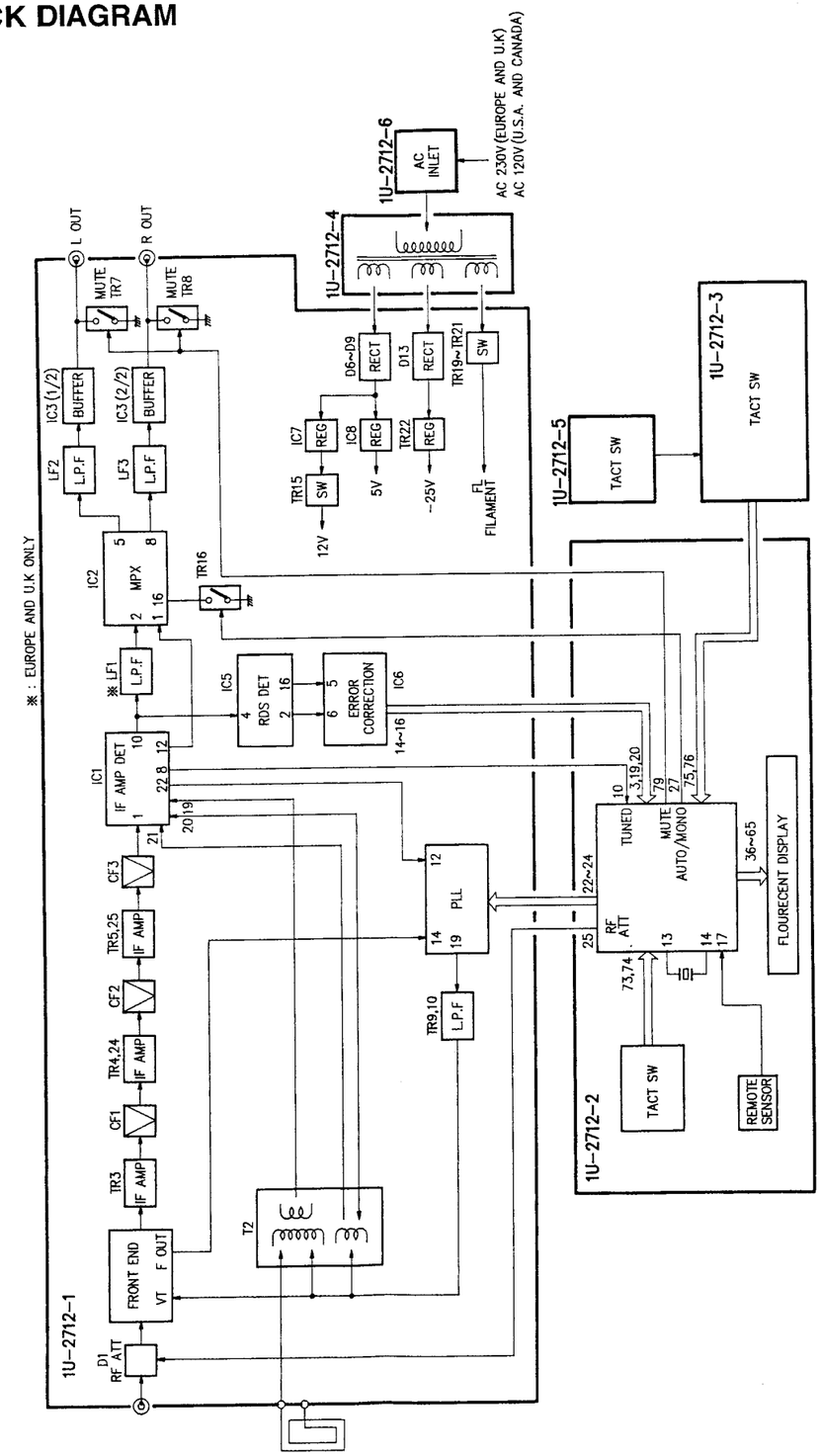
⑥ Remove the five front panel fixing screws (two on the sides and three on the bottom).
⑦ Release the two hooks (on the lift and right sides of the chassis) and detach the front panel to arrow direction.



⑧ Remove the eight screw fixing the circuit boards.
⑨ Release the two hooks and lift the circuit board (1U-2712-2) to arrow direction.
⑩ Lift the ciruit boards (1U-2712-3, 1U-2712-5) up and off.



BLOCK DIAGRAM

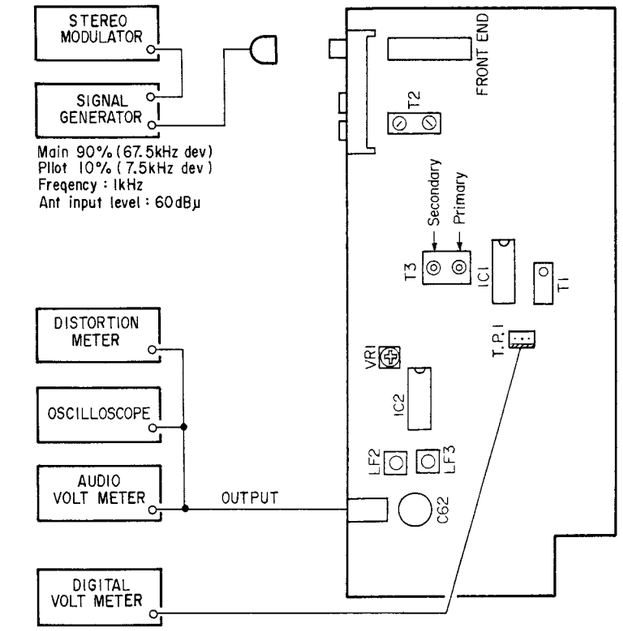


METHOD OF ADJUSTMENT

CONNECTION DIAGRAM OF MEASURING INSTRUMENTS

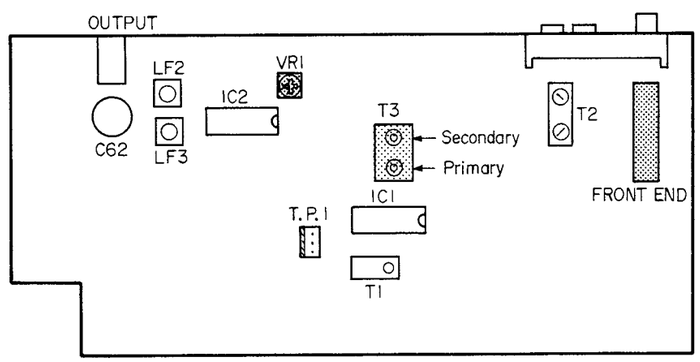
When making adjustments, be sure the power supply is at the rated voltage and the room air is on normal conditions with respect to temperature and humidity.

● **FM**



1U-2712 (Component Side)

1U-2712 TUNER UNIT FM Alignment Points (Component Side)



Front Panel Side

FM ALIGNMENT

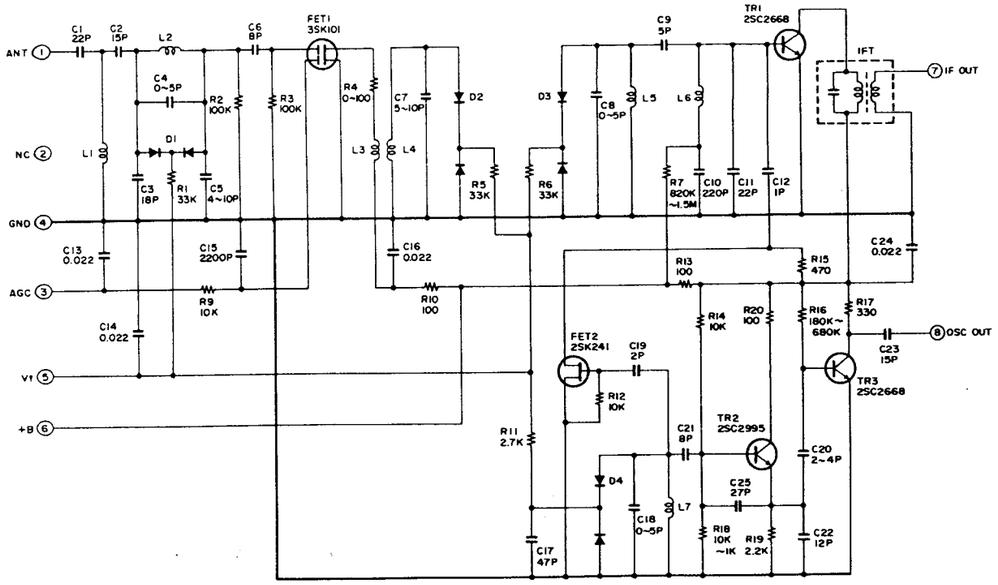
Item	Alignment Item	Tuning Frequency Setting	Input					Output		Adjustment	
			Type	Frequency	Input Level	Modulation	Coupling	Type	Connect to	Points	Adjust to
1	Center Adjustment	98 MHz	FMSSG	98 MHz	60 dBμ	Mono 1 kHz 100%	Antenna Terminal	Digital Voltmeter	T.P. 1	T3 Primary	± 50 mV
2	Distortion	98 MHz	FMSSG	98 MHz	60 dBμ	Mono 1 kHz 100%	Antenna Terminal	Distortion Meter	Output Terminal (L)	T3 Secondary	Minimum Distortion
3	Distortion	98 MHz	FMSSG	98 MHz	60 dBμ	Stereo (L) 1 kHz 100%	Antenna Terminal	Distortion Meter	Output Terminal (L)	FRONT END IFT	Minimum Distortion
4	Separation	98 MHz	FMSSG	98 MHz	60 dBμ	Stereo (L) 1 kHz 100%	Antenna Terminal	AC Voltmeter	Output Terminal (R)	VR1	Maximum Separation

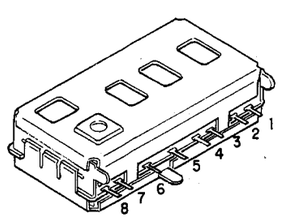
Initializing (Memory clearing) Method

To clear memory contents of microcomputer and restore to the state of shipment at the factory, take the following step.

- While pressing the Keys 1 and 7 of the front panel insert power cord into the AC outlet.

FRONT END (Europe, U.K.)

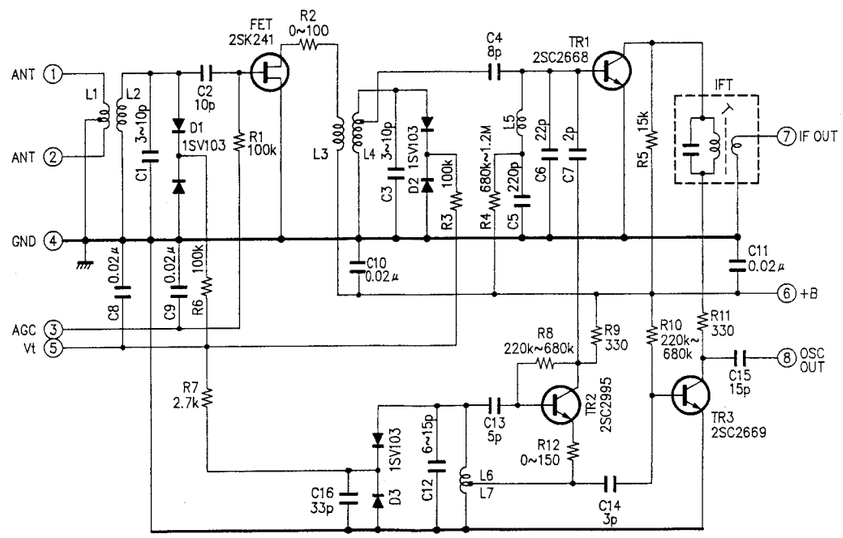


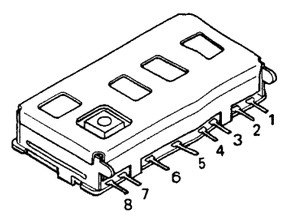


EXTERNAL TERMINALS

1. ANT
2. NC
3. AGC
4. GND
5. Vt
6. +B
7. IF OUT
8. OSC OUT

FRONT END (U.S.A., Canada)





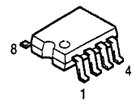
EXTERNAL TERMINALS

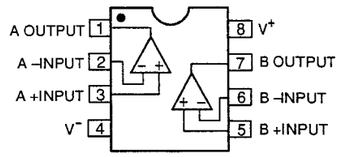
1. ANT
2. ANT
3. AGC
4. GND
5. Vt
6. +B
7. IF OUT
8. OSC OUT

SEMICONDUCTORS

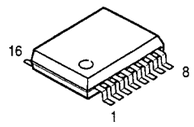
● IC's

BA4558



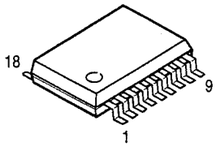


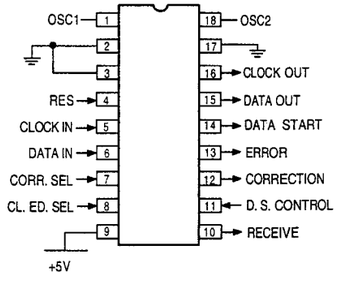
SAA6579T



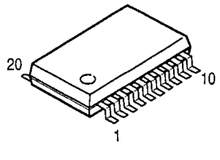
Pin No.	Symbol	Description
1	QUAL	Quality indication output.
2	RDDA	RDS data output.
3	V_{ref}	Reference voltage output (0.5 V_{DDA}).
4	MUX	Multiplex signal input.
5	V_{DDA}	+5 V supply voltage for analog part.
6	V_{SSA}	Ground for analog part (0 V).
7	CIN	Subcarrier input to comparator.
8	SCOUT	Subcarrier output of reconstruction filter.
9	TSTLD	Test control.
10	TEST	Test enable.
11	V_{SSD}	Ground for digital part (0 V).
12	V_{DDD}	+5 V supply voltage for digital part.
13	OSCI	Oscillator input.
14	OSCO	Oscillator output.
15	T57	57 kHz clock signal output.
16	RDCL	RDS clock output.

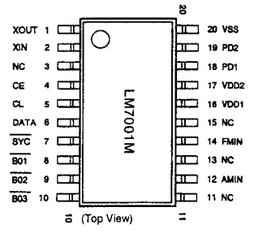
LC7074M



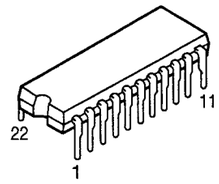


LM7001M

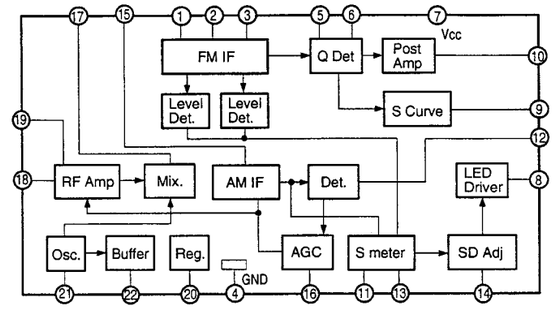




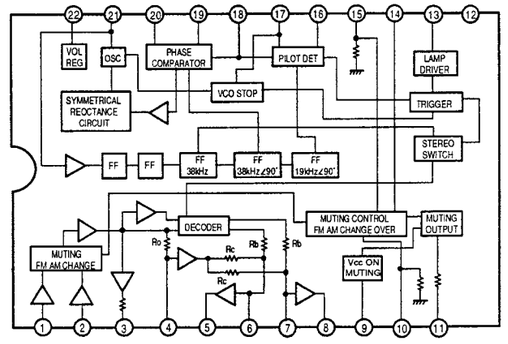
LA1265 (S)
LA3401



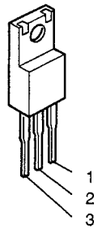
LA1265 (S)



LA3401

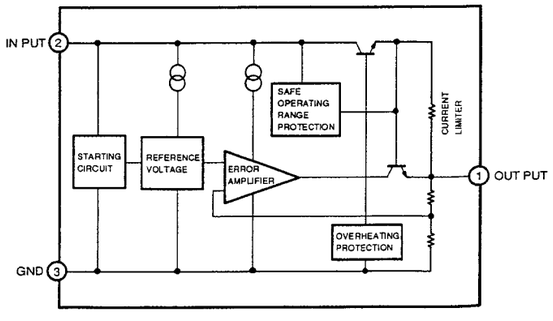


NJM78M06FA
NJM78M12FA

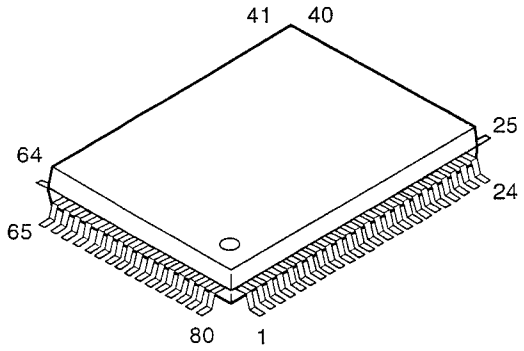


1 : Output
2 : GND
3 : Input

NJM78M Series



TMP87CM71F



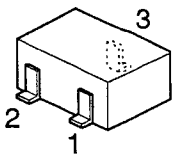
TMP87CM71F Port Allocation Table

Pin No.	Symbol	I/O	Logic	Initial Setting	Function
1	STOP	I	L	—	Power down detection ("L" = at power down).
2	GND	I	—	—	Not used.
3	RDS ST	I	Serial	—	RDS data (start) input.
4	RES	O	L	H	LC7074 reset output.
5 ~ 8	GND	I	—	—	Not used.
9	GND	I	—	—	Connect to GND.
10	TUNED	I	L	—	Tuned signal input ("L" = at tuned in).
11	GND	I	—	—	Not used.
12	RESET	I	L	—	Reset input.
13	XIN	I	—	—	Oscillation circuit (4MHz).
14	XOUT	I	—	—	Oscillation circuit (4MHz).
15	Vss	PW	—	—	GND
16	GND	I	—	—	Not used.
17	REM	I	L	—	Remote control signal input.
18	STEREO	I	L	—	Stereo signal input ("L" = at stereo).
19	RDS CK	I	Serial	—	RDS data (clock) input.
20	RDS DATA	I	Serial	—	RDS data (data) input.
21	GND	I	—	—	Not used.
22	PLL CK	O	Serial	L	LM7001 control output for PLL-CK.
23	PLL DATA	O	Serial	L	LM7001 control output for PLL-DATA.
24	PLL STB	O	H	L	LM7001 control output for PLL-STB.
25	RF ATT	O	L	H	RF attenuat or control output.
26	NC	O	—		Not used.
27	AUTO/ MONO	O	L	L	AUTO/MANUAL control signal ("L" = AUTO).
28	GND	I	—	—	Not used.
29	POWER	O	H	L	Power supply switch control output ("H" = ON).
30	GND	I	—	—	Not used.
31	GND	I	—	—	Not used.
32	GND	I	—	—	Not used.
33	VDD	PW	—	—	+5V
34	NC	I	—	—	Not used.
35	NC	I	—	—	Not used.
36	1G	O	—	—	FL tube control output for 1G.
37	2G	O	—	—	FL tube control output for 2G.
38	3G	O	—	—	FL tube control output for 3G.
39	4G	O	—	—	FL tube control output for 4G.

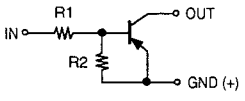
Pin No.	Symbol	I/O	Logic	Initial Setting	Function
40	5G	O	—	—	FL tube control output for 5G.
41	6G	O	—	—	FL Tube control output for 6G.
42	7G	O	—	—	FL Tube control output for 7G.
43	8G	O	—	—	FL Tube control output for 8G.
44	9G	O	—	—	FL Tube control output for 9G.
45	10G	O	—	—	FL Tube control output for 10G.
46	11G	O	—	—	FL Tube control output for 11G.
47	12G	O	—	—	FL Tube control output for 12G.
48	13G	O	—	—	FL Tube control output for 13G.
49	14G	O	—	—	FL Tube control output for 14G.
50	S0 (a)	O	—	—	FL Tube control output for P(a).
51	S1 (b)	O	—	—	FL Tube control output for P(b).
52	S2 (c)	O	—	—	FL Tube control output for P(c).
53	S3 (d)	O	—	—	FL Tube control output for P(d).
54	S4 (e)	O	—	—	FL Tube control output for P(e).
55	S5 (f)	O	—	—	FL Tube control output for P(f).
56	S6 (g)	O	—	—	FL Tube control output for P(g).
57	S7 (h)	O	—	—	FL Tube control output for P(h).
58	S8 (j)	O	—	—	FL Tube control output for P(j).
59	S9 (k)	O	—	—	FL Tube control output for P(k).
60	S10 (m)	O	—	—	FL Tube control output for P(m).
61	S11 (n)	O	—	—	FL Tube control output for p(n).
62	S12 (p)	O	—	—	FL Tube control output for P(p).
63	S13 (q)	O	—	—	FL Tube control output for P(q).
64	S14 (r)	O	—	—	FL Tube control output for P(r).
65	S15 (s)	O	—	—	FL Tube control output for P(s).
66	Vkk	PW	—	—	-25V
67 ~ 72	GND	I	—	—	Not used.
73	KEY1	I	—	—	Key input (A/D conversion input).
74	KEY2	I	—	—	Key input (A/D conversion input).
75	KEY3	I	—	—	Key input (A/D conversion input).
76	KEY4	I	—	—	Key input (A/D conversion input).
77	VER	I	—	—	Forwarding country setting. (5V: Europe, U.K. GND: USA, Canada)
78	VER	I	—	—	Specification setting.
79	MUTE	O	H	H	MUTE output ("H" = MUTE).
80	GND	I	—	—	Not used.

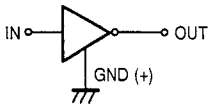
● TRANSISTORS

RN2402
DTC323TK
DTC144EK
DTC114TK
DTC144TK

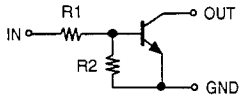


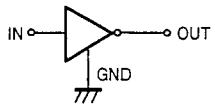
1 : GND/Emitter
2 : In/Base
3 : Out/Collector



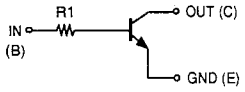


	R1	R2
RN2402	10Kohm	10Kohm



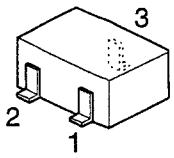


	R1	R2
DTC144EK	47Kohm	47Kohm



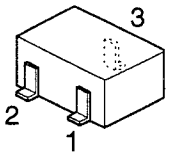
	R1
DTC323TK	2.2Kohm
DTC114TK	10Kohm
DTC144TK	47Kohm

2SK209



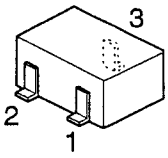
1 : Drain
2 : Source
3 : Gate

2SK211



1 : Gate
2 : Drain
3 : Source

2SA1037
2SA1362
2SC2412
2SC2712
2SC2996
2SC3326

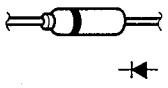


1 : Emitter
2 : Base
3 : Collector

● DIODES

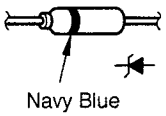
1SS270A
1SS252

1SS110A
1SS135

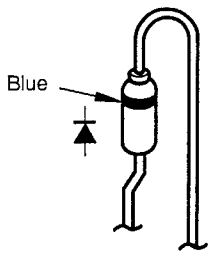


HZS27-1
HZS9A-1
HZS4C-1
HZS5C-1

(Zener)

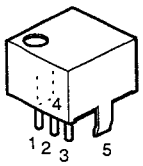


1SR35-200A

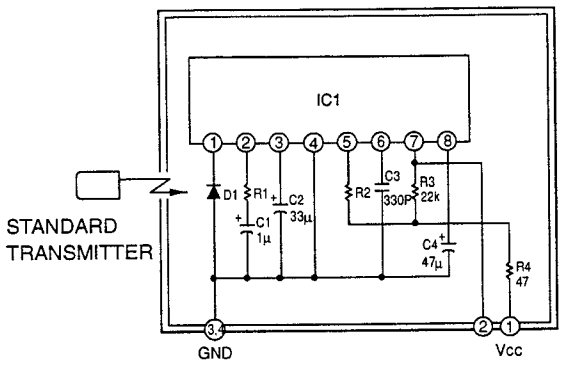


● REMOTE SENSOR

(SBX1610-52)

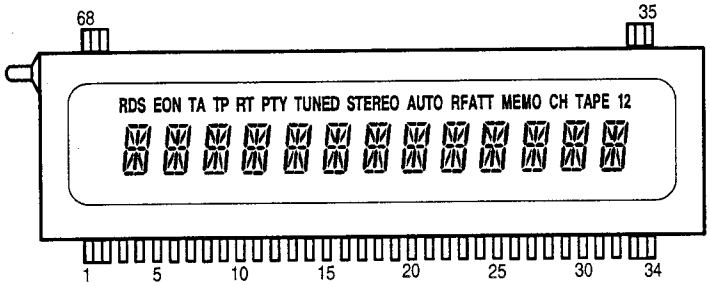


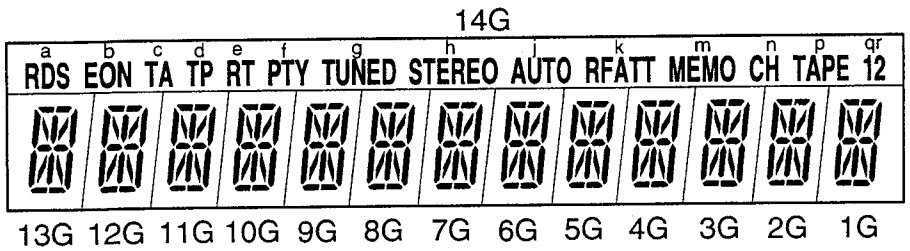
1. Vcc
2. Output
3. GND
4. Case Fin
5. Case Fin

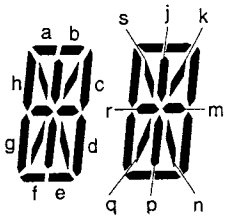


IC1 : CX20106A Chip
D1 : PIN Photo Diode Chip
C1, C2, C4: Aluminum Electrolytic Capacitor
C3 : SL Characteristic ±5%
R1 : Gain Adjuster
R2 : fo Adjust ±1% USE
R3, R4 : ± 5%

● FLD (FIP14AM7R)







TERMINAL CONNECTION

(UPPER)

TERMINAL NO.	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52				
ELECTRODE	F1	F1	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP				
TERMINAL NO.				51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	
ELECTRODE				NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	F2	F2	

(LOWER)

TERMINAL NO.				18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	
ELECTRODE				P a	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	F2	F2	
TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17				
ELECTRODE	F1	F1	P s	P r	P q	P p	P n	P m	P k	P j	P h	P g	P f	P e	P d	P c	P b				

Notes : F : Filament NP : No. Pin
G : Grid
P : Anode

NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "l" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol ⚠ ▒▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon RC : Composition RS : Metal oxide film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

* Resistance

1 8 2 ⇒ 1800 ohm = 1.8 kohm
(2) Indicates number of zeros after effective number.
(1) 2-digit effective number.
• Units: ohm

1 R 2 ⇒ 1.2 ohm
(2) 1-digit effective number.
(1) 2-digit effective number, decimal point indicated by R.
• Units: ohm

● Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolytic CA : Aluminum solid electrolytic CS : Tantalum electrolytic CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

* Capacity (electrolyte only)

2 2 2 ⇒ 2200μF
(2) Indicates number of zeros after effective number.
(1) 2-digit effective number.
• Units: μF.

2 R 2 ⇒ 2.2μF
(2) 1-digit effective number.
(1) 2-digit effective number, decimal point indicated by R.
• Units: μF.

* Capacity (except electrolyte)

2 2 2 ⇒ 2200pF = 0.0022μF
(More than 2) Indicates number of zeros after effective number.
(1) 2-digit effective number.
• Units: μF.

2 2 1 ⇒ 220pF
(0 or 1) Indicates number of zeros after effective number.
(1) 2-digit effective number.
• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dieelectric strength value.

PARTS LIST OF P.W.BOARD (1U-2712) MAIN UNIT

Ref.No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC001	263 0891 001	IC LA1265(S)	
IC002	263 0439 007	IC LA3401	
IC003	263 0672 903	IC BA4558F-T1	
IC004	263 0791 907	IC LM7001M-TP-T1	
IC005	262 1701 906	IC SAA6579T-T	
IC006	262 1929 908	IC LC7074M-TE-R	
IC007	263 0794 001	IC NJM78M12FA(S)	
IC008	263 0792 003	IC NJM78M06FA(S)	
IC201	262 1960 006	IC TMP87CM71F-6184	
TR001	269 0083 901	Transistor DTA114EKT96	Built in Resistor
TR002	269 0054 901	Transistor DTC144EKT96	Built in Resistor
TR003	275 0074 902	Transistor 2SK211 Y/GR-(TE85L)	
TR004,005	273 0411 909	Transistor 2SC2996-Y(TE85L)	
TR006	269 0085 909	Transistor DTC144TKT96	Built in Resistor
TR007,008	269 0066 902	Transistor DTC323TKT96	Built in Resistor
TR009	275 0075 901	Transistor 2SK209 Y/GR-(TE85L)	
TR010	273 0403 904	Transistor 2SC2712Y/GR-(TE85L)	Europe, U.K.

Ref.No.	Part No.	Part Name	Remarks
TR010	273 0384 900	Transistor 2SC2412KT96(S)	U.S.A., Canada
TR011,012	269 0114 906	Transistor RN2402	Built in Resistor
TR013	269 0083 901	Transistor DTA114EKT96	Built in Resistor
TR014	269 0088 906	Transistor DTC114TKT96	Built in Resistor
TR015	271 0264 901	Transistor 2SA1362(Y/GR)	Europe, U.K.
TR015	271 0238 908	Transistor 2SA1037KT96(S/R)	U.S.A., Canada
TR016	269 0085 909	Transistor DTC144TKT96	Built in Resistor
TR017	273 0403 904	Transistor 2SC2712Y/GR-(TE85L)	Europe, U.K.
TR017	273 0384 900	Transistor 2SC2412KT96(S)	U.S.A., Canada
TR018	269 0083 901	Transistor DTA114EKT96	Built in Resistor
TR019-021	273 0348 904	Transistor 2SC3326 A/B(TAPE)	
TR022	271 0264 901	Transistor 2SA1362(Y/GR)	Europe, U.K.
TR022	271 0238 908	Transistor 2SA1037KT96(S/R)	U.S.A., Canada
TR023	269 0082 902	Transistor DTC114EKT96	Built in Resistor
TR024,025	273 0411 909	Transistor 2SC2996-Y(TE85L)	
D001	276 0546 909	Diode 1SS110	Europe, U.K.
D001	276 0402 904	Diode 1SS135	U.S.A., Canada
D002-004	276 0432 903	Diode 1SS270A TE	Europe, U.K.
D002-004	276 0616 907	Diode 1SS252 T-77	U.S.A., Canada

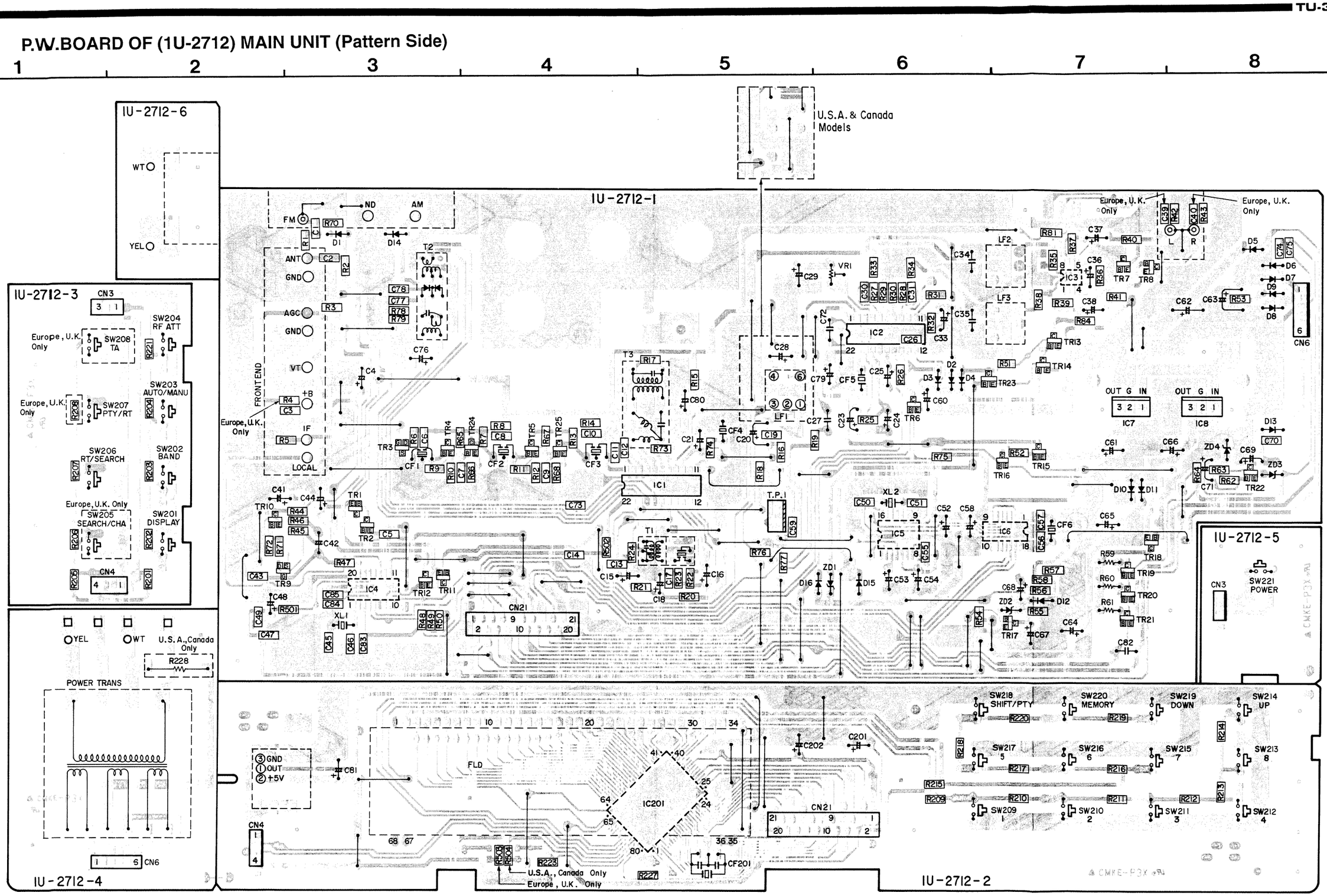
Ref.No.	Part No.	Part Name	Remarks
D005~009	276 0553 905	Diode 1SR35-200A(T93X)	
D010	276 0432 903	Diode 1SS270A TE	Europe, U.K.
D010	276 0616 907	Diode 1SS252 T-77	U.S.A., Canada
D011	276 0553 905	Diode 1SR35-200A(T93X)	
D012	276 0432 903	Diode 1SS270A TE	Europe, U.K.
D012	276 0616 907	Diode 1SS252 T-77	U.S.A., Canada
D013	276 0553 905	Diode 1SR35-200A(T93X)	
D014~016	276 0432 903	Diode 1SS270A TE	Europe, U.K.
D014~016	276 0616 907	Diode 1SS252 T-77	U.S.A., Canada
ZD001	276 0460 904	Zener Diode HZS5C-1TD	
ZD002	276 0457 904	Zener Diode HZS4C-1TD	
ZD003	276 0467 907	Zener Diode HZS9A-1TD	
ZD004	276 0482 908	Zener Diode HZS27-1TD	
RESISTORS GROUP (not included Carbon Film ±5% 1/4W type)			
R001,002	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R003	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT Europe, U.K.
R003	247 0018 905	Chip 0ohm 1/10W	RM73B--0R0KT U.S.A., Canada
R004	247 0010 929	Chip 15kohm 1/10W	RM73B--153JT Europe, U.K. Only
R005	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R006,007	247 0006 920	Chip 330ohm 1/10W	RM73B--331JT
R008	247 0005 905	Chip 100ohm 1/10W	RM73B--101JT
R009	247 0006 920	Chip 330ohm 1/10W	RM73B--331JT
R010	247 0008 902	Chip 1.8kohm 1/10W	RM73B--182JT
R011	247 0006 920	Chip 330ohm 1/10W	RM73B--331JT
R012	247 0008 902	Chip 1.8kohm 1/10W	RM73B--182JT
R013	247 0006 920	Chip 330ohm 1/10W	RM73B--331JT
R014	247 0005 905	Chip 100ohm 1/10W	RM73B--101JT
R015	247 0018 905	Chip 0ohm 1/10W	RM73B--0R0KT
R016	247 0007 961	Chip 1.2kohm 1/10W	RM73B--122JT Europe, U.K.
R016	247 0018 905	Chip 0ohm 1/10W	RM73B--0R0KT U.S.A., Canada
R017	247 0008 960	Chip 3.3kohm 1/10W	RM73B--332JT
R018	247 0011 928	Chip 39kohm 1/10W	RM73B--393JT Europe, U.K.
R018	247 0010 945	Chip 18kohm 1/10W	RM73B--183JT U.S.A., Canada
R019	247 0008 960	Chip 3.3kohm 1/10W	RM73B--332JT
R020	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT
R021	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT
R022	247 0009 927	Chip 5.6kohm 1/10W	RM73B--562JT
R023	247 0009 943	Chip 6.8kohm 1/10W	RM73B--682JT
R024	247 0011 986	Chip 68kohm 1/10W	RM73B--683JT
R025	247 0008 960	Chip 3.3kohm 1/10W	RM73B--332JT
R026~028	247 0012 927	Chip 100kohm 1/10W	RM73B--104JT
R029,030	247 0012 998	Chip 200kohm 1/10W	RM73B--204JT Europe, U.K.
R029,030	247 0012 943	Chip 120kohm 1/10W	RM73B--124JT U.S.A., Canada
R031	247 0011 915	Chip 36kohm 1/10W	RM73B--363JT
R032	247 0012 927	Chip 100kohm 1/10W	RM73B--104JT
R033,034	247 0008 960	Chip 3.3kohm 1/10W	RM73B--332JT
R035	247 0010 929	Chip 15kohm 1/10W	RM73B--153JT
R036	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT
R037	247 0010 958	Chip 20kohm 1/10W	RM73B--203JT Europe, U.K.

Ref.No.	Part No.	Part Name	Remarks
R037	247 0010 929	Chip 15kohm 1/10W	RM73B--153JT U.S.A., Canada
R038	247 0010 929	Chip 15kohm 1/10W	RM73B--153JT
R039	247 0010 958	Chip 20kohm 1/10W	RM73B--203JT Europe, U.K.
R039	247 0010 929	Chip 15kohm 1/10W	RM73B--153JT U.S.A., Canada
R040,041	247 0006 946	Chip 390ohm 1/10W	RM73B--391JT
R042,043	247 0012 927	Chip 100kohm 1/10W	RM73B--104JT
R044	247 0005 905	Chip 100ohm 1/10W	RM73B--101JT
R045	247 0009 969	Chip 8.2kohm 1/10W	RM73B--822JT
R046	247 0008 986	Chip 3.9kohm 1/10W	RM73B--392JT
R047~050	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT
R051	247 0010 961	Chip 22kohm 1/10W	RM73B--223JT
R052	247 0007 903	Chip 680ohm 1/10W	RM73B--681JT
R053	247 0011 928	Chip 39kohm 1/10W	RM73B--393JT
R054	247 0011 944	Chip 47kohm 1/10W	RM73B--473JT
R055,056	247 0009 927	Chip 5.6kohm 1/10W	RM73B--562JT
R057,058	247 0010 961	Chip 22kohm 1/10W	RM73B--223JT
R062	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R063,064	247 0009 901	Chip 4.7kohm 1/10W	RM73B--472JT
R065	247 0010 945	Chip 18kohm 1/10W	RM73B--183JT
R066	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT
R067	247 0010 945	Chip 18kohm 1/10W	RM73B--183JT
R068	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT
R070	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R071	247 0006 946	Chip 390ohm 1/10W	RM73B--391JT
R072	247 0005 947	Chip 150ohm 1/10W	RM73B--151JT
R073	247 0010 929	Chip 15kohm 1/10W	RM73B--153JT
R074	247 0005 921	Chip 120ohm 1/10W	RM73B--121JT
R075	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R076	247 0009 927	Chip 5.6kohm 1/10W	RM73B--562JT
R077	247 0009 901	Chip 4.7kohm 1/10W	RM73B--472JT
R078,079	247 0012 927	Chip 100kohm 1/10W	RM73B--104JT
R081	247 0010 916	Chip 13kohm 1/10W	RM73B--133JT
R084	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT
R201,202	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R203	247 0006 975	Chip 510ohm 1/10W	RM73B--511JT
R204	247 0006 917	Chip 300ohm 1/10W	RM73B--301JT
R205	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R206	247 0005 976	Chip 200ohm 1/10W	RM73B--201JT Europe, U.K.
R206	247 0018 905	Chip 0ohm 1/10W	RM73B--0R0KT U.S.A., Canada
R207	247 0006 917	Chip 300ohm 1/10W	RM73B--301JT Europe, U.K.
R207	247 0005 976	Chip 200ohm 1/10W	RM73B--201JT U.S.A., Canada
R208	247 0006 975	Chip 510ohm 1/10W	RM73B--511JT Europe, U.K. Only
R209	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R210	247 0005 976	Chip 200ohm 1/10W	RM73B--201JT
R211	247 0006 917	Chip 300ohm 1/10W	RM73B--301JT
R212	247 0006 975	Chip 510ohm 1/10W	RM73B--511JT
R213	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R214	247 0008 957	Chip 3kohm 1/10W	RM73B--302JT
R215	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R216	247 0005 976	Chip 200ohm 1/10W	RM73B--201JT
R217	247 0006 917	Chip 300ohm 1/10W	RM73B--301JT
R218	247 0006 975	Chip 510ohm 1/10W	RM73B--511JT
R219	247 0008 957	Chip 3kohm 1/10W	RM73B--302JT
R220	247 0007 945	Chip 1kohm 1/10W	RM73B--102JT
R221	247 0005 976	Chip 200ohm 1/10W	RM73B--201JT

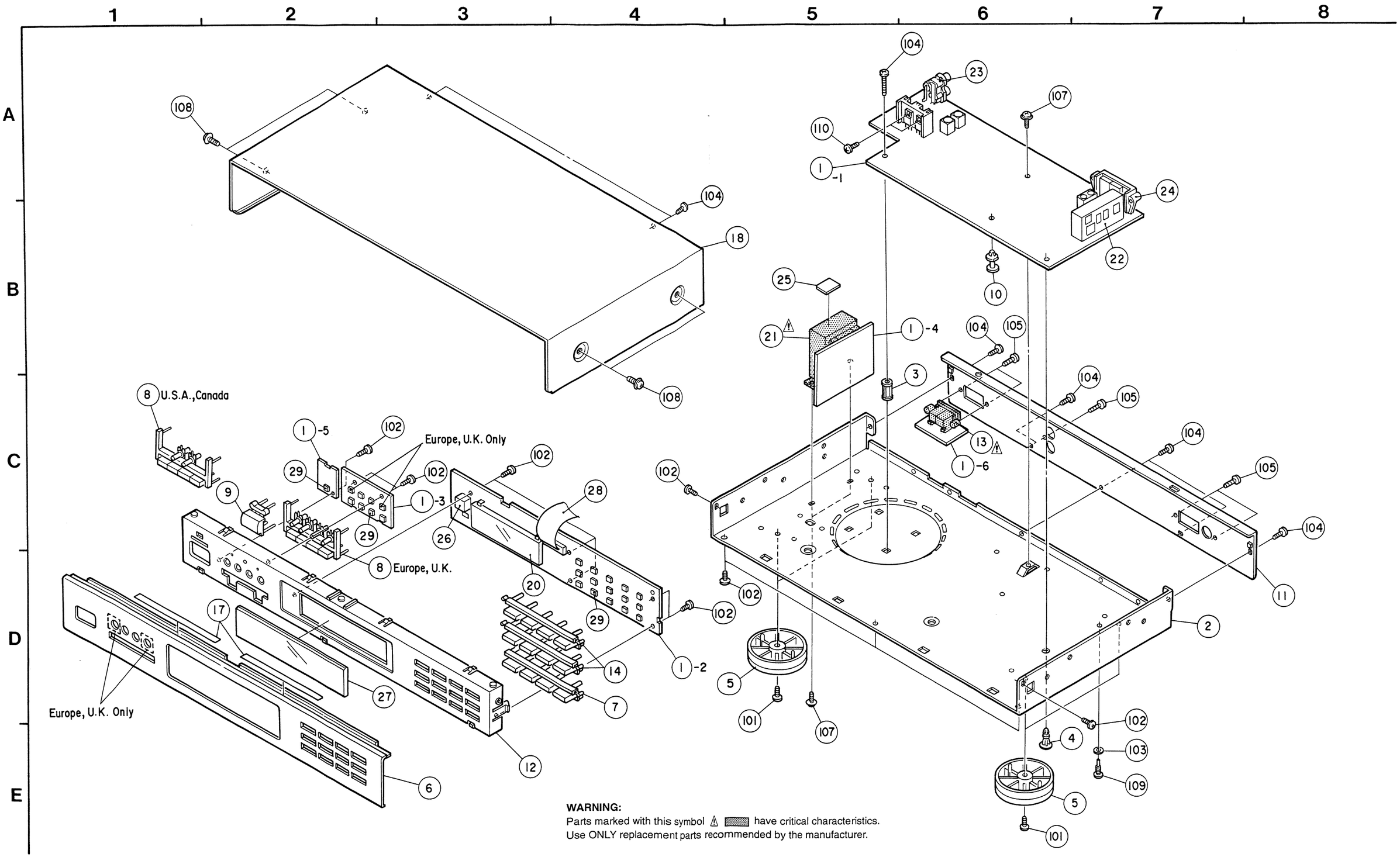
Ref.No.	Part No.	Part Name	Remarks
R223	247 0018 905	Chip 0ohm 1/10W	RM73B--0R0KT
R227	247 0012 927	Chip 100kohm 1/10W	RM73B--104JT
⚠R228	242 0073 000	Composition 2.2Mohm 1/2W	RC05GF2H225K U.S.A.,Canada Only
R501~502	247 0018 905	Chip 0ohm 1/10W	RM73B--0R0KT
R503	247 0018 905	Chip 0ohm 1/10W	RM73B--0R0KT Europe, U.K. Only
R504	247 0018 905	Chip 0ohm 1/10W	RM73B--0R0KT U.S.A.,Canada Only
CAPACITORS GROUP			
C001,002	257 0008 983	Ceramic(Chip) 0.001μF/50V	CK73B1H102KT
C003	257 0012 966	Ceramic(Chip) 0.01μF/50V	CK73F1H103ZT
C004	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT SME
C005~012	257 0012 966	Ceramic(Chip) 0.01μF/50V	CK73F1H103ZT
C013	257 0004 961	Ceramic(Chip) 100pF/50V	CC73L1H101JT
C014	257 0012 966	Ceramic(Chip) 0.01μF/50V	CK73F1H103ZT
C015	254 4260 935	Electrolytic 0.47μF/50V	CE04W1HR47MT SME
C016	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C017	257 0012 982	Ceramic(Chip) 0.022μF/50V	CK73F1H223ZT
C018	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT SME
C019	257 0004 961	Ceramic(Chip) 100pF/50V	CC73SL1H101JT
C020	254 4254 912	Electrolytic 22μF/16V	CE04W1C220MT SME
C021	254 4260 922	Electrolytic 0.33μF/50V	CE04W1HR33MT SME
C023	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C024	254 4260 919	Electrolytic 0.22μF/50V	CE04W1HR22MT SME
C025	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C026	257 0012 966	Ceramic(Chip) 0.01μF/50V	CK73F1H103ZT
C027	256 1034 940	Metallized 0.056μF/50V	CF93A1H563JT
C028	254 4254 912	Electrolytic 22μF/16V	CE04W1C220MT SME Europe, U.K. Only
C029	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT SME
C030,031	257 0006 930	Ceramic(Chip) 510pF/50V	CC73SL1H511JT Europe, U.K.
C030,031	257 0006 972	Ceramic(Chip) 750pF/50V	CC73SL1H751JT U.S.A., Canada
C033	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C034,035	255 1264 940	Film 0.0022μF/50V	CQ93M1H222JT B
C036	254 4254 938	Electrolytic 47μF/16V	CE04W1C470MT SME
C037,038	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C039,040	257 0009 953	Ceramic(Chip) 0.0039μF/50V	CK73B1H392KT Europe, U.K. Only
C041	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C042	254 3056 917	Electrolytic 1μF/50V(Bipolar)	CE04D1H010MBPT SME
C043	257 0012 982	Ceramic(Chip) 0.022μF/50V	CK73F1H223ZT
C044	254 4254 938	Electrolytic 47μF/16V	CE04W1C470MT SME
C045,046	257 0002 989	Ceramic(Chip) 18pF/50V	CC73SL1H180JT
C047	257 0012 966	Ceramic(Chip) 0.01μF/50V	CK73F1H103ZT
C048	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C049	257 0004 961	Ceramic(Chip) 100pF/50V	CC73SL1H101JT
C050,051	257 0016 962	Ceramic(Chip) 27pF/50V	CC73CH1H270JT
C052	254 4250 916	Electrolytic 47μF/6.3V	CE04W0J470MT SME
C053	254 4260 951	Electrolytic 2.2μF/50V	CE04W1H2R2MT SME
C054	254 4250 916	Electrolytic 47μF/6.3V	CE04W0J470MT SME
C055	257 0006 943	Ceramic(Chip) 560pF/50V	CC73SL1H561JT
C056,057	257 0003 933	Ceramic(Chip) 30pF/50V	CC73SL1H300JT
C058	254 4250 916	Electrolytic 47μF/6.3V	CE04W0J470MT SME
C059	257 0004 961	Ceramic(Chip) 100pF/50V	CC73SL1H101JT
C060	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C061	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT SME
C062	254 4259 700	Electrolytic 2200μF/35V	CE04W1V222MC SME
C063	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME

Ref.No.	Part No.	Part Name	Remarks
C064	259 0007 702	Electrolytic 8200μF/?V	SB CAP==822=C
C065	254 4250 958	Electrolytic 470μF/6.3V	CE04W0J471MT SME
C066	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT SME
C067	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT SME
C068	254 4260 977	Electrolytic 4.7μF/50V	CE04W1H4R7MT SME
C069	254 4258 950	Electrolytic 100μF/35V	CE04W1V101MT SME
C070	257 0012 966	Ceramic(Chip) 0.01μF/50V	CK73F1H103ZT
C071	254 4258 918	Electrolytic 10μF/35V	CE04W1V100MT SME
C072	256 1034 937	Metallized 0.047μF/50V	CF93A1H473JT
C073~075	257 0012 966	Ceramic(Chip) 0.01μF/50V	CK73F1H103ZT
C076	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT SME
C077	257 0002 947	Ceramic(Chip) 12pF/50V	CC73SL1H120JT
C078	257 0012 966	Ceramic(Chip) 0.01μF/50V	CK73F1H103ZT
C079	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT SME
C080,081	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT SME
C082	256 1034 979	Metallized 0.1μF/50V	CF93A1H104JT
C083~085	257 0004 961	Ceramic(Chip) 100pF/50V	CC73SL1H101JT
C201	254 4258 950	Electrolytic 100μF/35V	CE04W1V101MT SME
C202	254 4250 929	Electrolytic 100μF/6.3V	CE04W0J101MT SME
C204	257 0004 961	Ceramic(Chip) 100pF/50V	CC73SL1H101JT
OTHER PARTS			
XL001	399 0075 003	Crystal Resonator (7.2MHz)	
XL002	399 0178 007	Crystal Resonator (4.332MHz)	
CF001,002	261 0078 006	Ceramic Filter SFE10.7MM(25KHz)	
CF003	261 0089 008	Ceramic Filter SFE10.7MS2GH-A	
CF004	261 0101 009	Ceramic Filter :CF. BFU450C4N	Europe, U.K.
CF004	261 0031 001	Ceramic Filter BFU450C4 (C.F)	U.S.A.,Canada
CF005	261 0103 007	Ceramic Filter :C.O CSB456F11	Europe, U.K.
CF005	261 0079 005	Ceramic Filter CSB456F11	U.S.A.,Canada
CF006	399 0041 901	Ceramic Resonator CSA4.00MG	
CF201	399 0191 903	Ceramic Resonator CST4.00MGW-TF01	
LF001	232 0159 008	:Anti Birdie Filter	Europe, U.K. Only
LF002,003	232 0148 006	:MPX Filter	
T001	231 1132 005	AM IFT (SFL450J3)	
T002	231 2096 001	MW ANT-OSC Coil	
T003	231 2097 000	FM IF DET Trans.	
SW201,204, 206,207, 209~221	212 5604 910	Tact Switch	
⚠	203 2349 009	2P AC Inlet	Europe, U.K.
⚠	203 2359 002	2P AC Inlet	U.S.A.,Canada
⚠	233 6092 007	Power Transformer	Europe, U.K.
⚠	233 6117 005	Power Transformer	U.S.A.,Canada
	205 0847 004	3P Antenna Terminal(PAL/F)	
	216 0079 005	FM Frontend (U)	Europe, U.K.
	216 9009 005	FM Frontend	U.S.A.,Canada
	393 4155 002	FL Tube (FIP14AM7R)	
	499 0150 008	Remote Sensor (SBX1610-52)	

P.W.BOARD OF (1U-2712) MAIN UNIT (Pattern Side)



EXPLODED VIEW



WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks
◉ 1	1U-2712	Main Unit Ass'y	Europe, U.K.
◉ 1	1U-2712 A	Main Unit Ass'y	U.S.A., Canada
1-1	—	Tuner Unit	
1-2	—	Display Unit	
1-3	—	Tact Switch Unit	
1-4	—	Power Trans Unit	
1-5	—	Power Switch Unit	
1-6	—	Inlet Unit	
◉ 2	411 0942 407	:*Chassis	
◉ 3	412 2762 002	P.W.B.Holder	
◉ 4	412 2741 007	P.W.B.Holder(H=8)	
5	104 0208 201	Foot Ass'y	
◉ 6	144 2366 000	Front Panel	Europe, U.K.
◉ 6	144 2366 026	Front Panel	U.S.A., Canada
◉ 6	144 2366 013	Front Panel	(Gold)
7	113 1510 154	Program Button	Europe, U.K.
7	113 1510 183	Program Button	U.S.A., Canada
7	113 1510 170	Program Button	(Gold)
8	113 1668 006	Tact Button	Europe, U.K.
8	113 1668 022	Tact Button	U.S.A., Canada
8	113 1668 019	Tact Button	(Gold)
9	113 1292 207	Power Button	
9	113 1292 223	Power Button	(Gold)
10	412 2814 002	Card Spacer (L=8)	
◉ 11	105 1115 037	:Rear Panel	Europe
◉ 11	105 1115 011	:Rear Panel	U.K.
◉ 11	105 1115 040	Rear Panel	U.S.A., Canada
◉ 12	146 1484 002	:Inner Panel	
◉ 12	146 1484 015	:Inner Panel	(Gold)
⚠ 13	203 2349 009	2P Inlet	Europe, U.K.
⚠ 13	203 2359 002	2P Inlet	U.S.A., Canada
14	113 1510 141	Program Button	
14	113 1510 167	Program Button	(Gold)
◉ 17	461 0577 000	Rubber Sheet	
◉ 18	102 0413 223	:*Top Cover	
◉ 18	102 0413 236	:*Top Cover	(Gold)
20	393 4155 002	FL Tube	FIP14AM7R
⚠ 21	233 6092 007	Power Trans	Europe, U.K.
⚠ 21	233 6117 005	Power Trans	U.S.A., Canada
22	216 0079 005	FM Frontend	Europe, U.K.
22	216 9009 005	FM Frontend	U.S.A., Canada
23	205 0274 004	2P Connector Base	
24	205 0847 004	3P Antnna Terminal	
◉ 25	461 0551 026	Rubber Sheet	
26	499 0150 008	Remote Sensor	SBX1610-52
27	143 0877 200	Window	
28	009 0113 004	21P FFC Cable	Europe, U.K.
28	009 0045 004	21P FFC Cable	U.S.A., Canada
29	212 5604 910	Tact Switch	
101	473 7002 021	Screw 3 × 8 CBTS(S)-B	
102	473 7508 017	Screw 3 × 10 CBTS(P)-B	
103	475 2003 034	3φWasher	
104	473 7015 018	Screw 3 × 8 CBTS(S)-B	
105	477 0064 107	Fixing Screw	
107	473 8007 025	Cup Screw 3 × 8	
108	477 0263 005	3P Swelling Screw	
108	477 1263 018	3P Swelling Screw	(Gold)
109	477 0276 018	Earth Screw	
110	471 3304 015	Screw 3 × 8 CBS-Z	

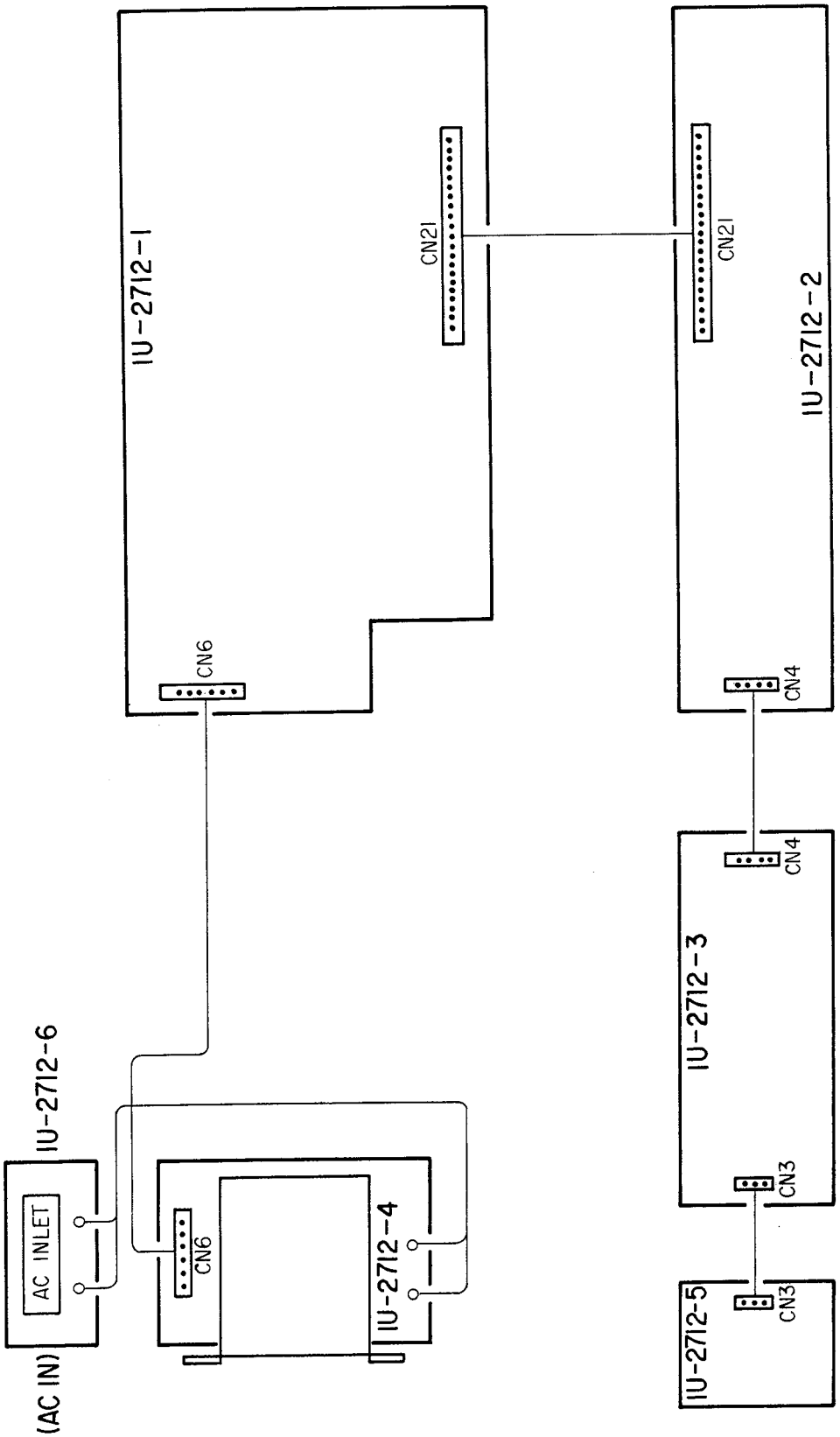
PACKING & ACCESSORIES

Ref. No.	Part No.	Part Name	Remarks	Q'ty
	505 0102 089	Styrene Paper		1
	503 0859 006	:Cushion	Europe, U.K.	2
	503 1141 001	Cushion	U.S.A., Canada	2
	502 0741 085	:Pad	U.K. Only	2
	501 1775 002	Carton Case	Europe	1
	501 1775 028	:Carton Case	U.K.	1
	501 1804 009	Carton Case	U.S.A., Canada	1
	505 9125 009	:Poly Cover	Europe, U.K.	1
	505 0178 000	:Poly Cover	U.S.A., Canada	1
	203 2310 009	Pin Cord	Europe, U.K.	1
	203 2360 004	Pin Cord	U.S.A., Canada	1
	231 0922 009	Loop Antenna		1
	395 0021 000	FM Antenna Ass'y	Europe, U.K.	1
	395 0020 027	FM Antenna Ass'y	U.S.A., Canada	1
	511 2611 007	Instruction Manual	Europe, U.K.	1
	511 2638 006	Instruction Manual	U.S.A., Canada	1
⚠	206 2108 003	:AC Cord with Plug	Europe	1
⚠	206 2113 001	:AC Cord with Plug	U.K.	1
⚠	206 2119 005	AC Cord with Plug	U.S.A., Canada	1

WARNING

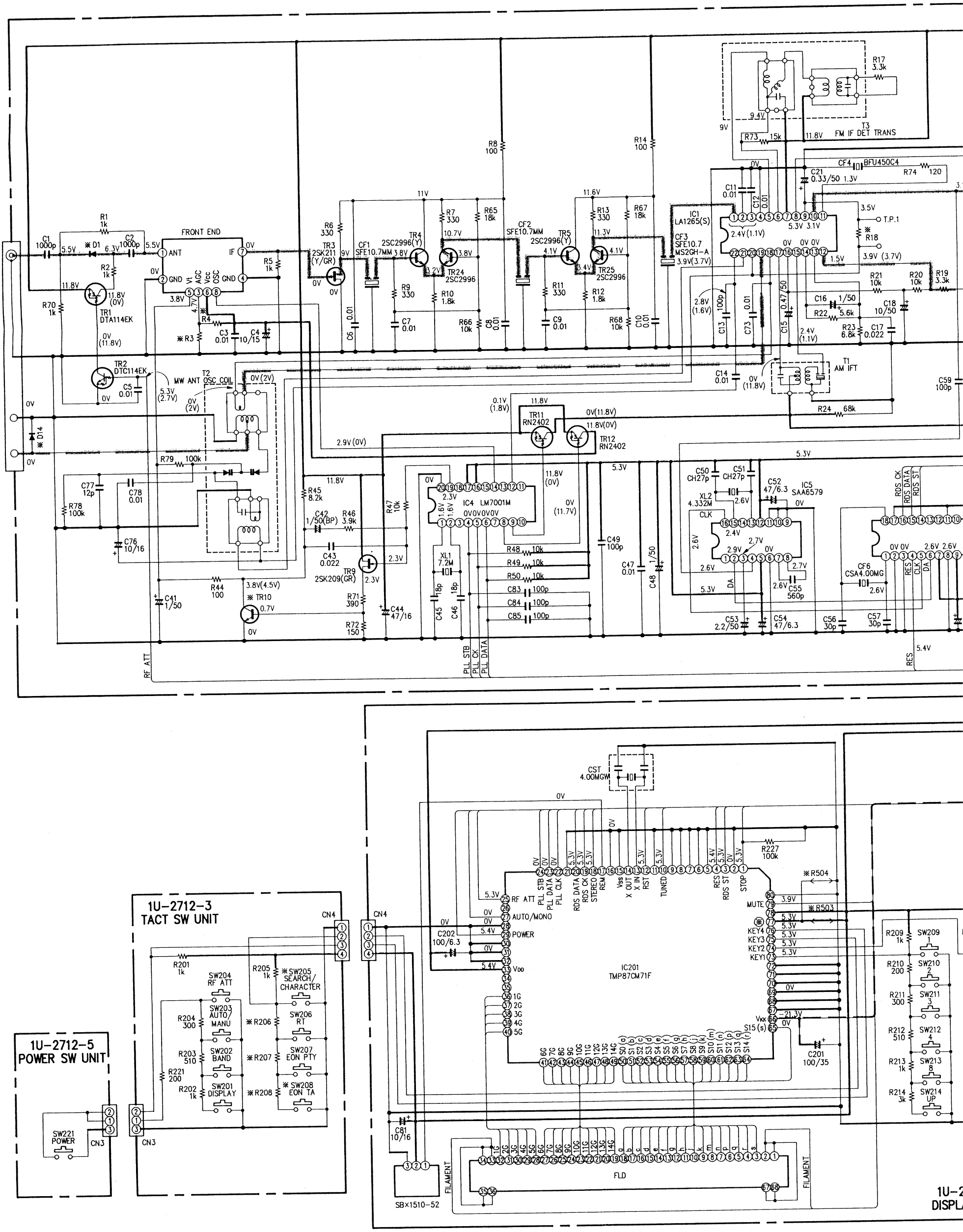
- Parts marked with ⚠ and/shading have special characteristics important to sefty.
  Be sure to use the specified parts for replacement.
- Part indicated with the mark ◉ are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- (Gold) in the Remarks column refers with gold front panels.

WIRING DIAGRAM



SCHEMATIC DIAGRAM

11 10 9 8 7 6

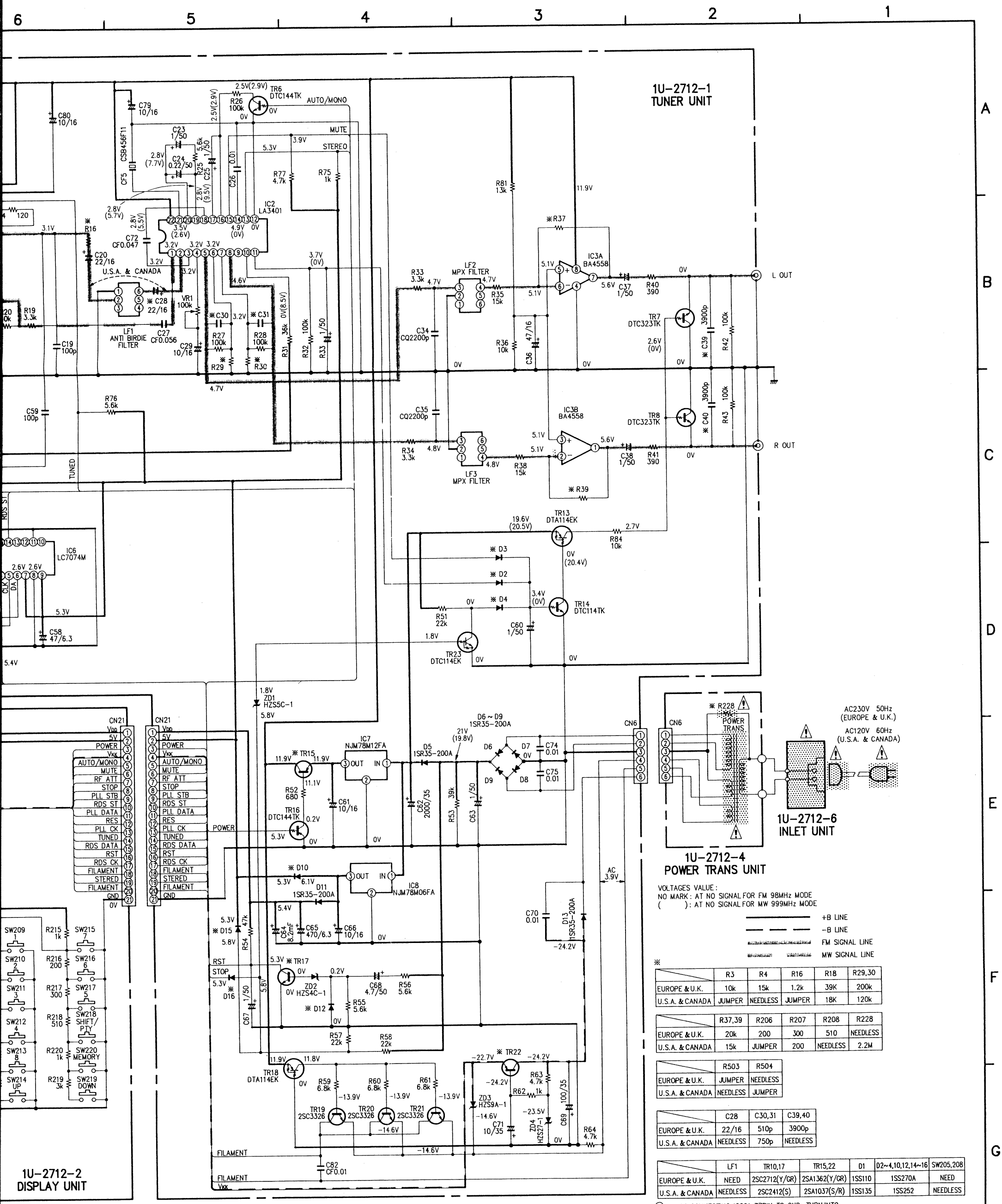


WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either
leakage current exceeds 0.5 milliamps, or if the resistance from chas

WARNING:
DO NOT return the unit to the customer until the problem is located a

NOTES:
Circuit and parts are subject to change without prior notice.



※

	R3	R4	R16	R18	R29,30
EUROPE & U.K.	10k	15k	1.2k	39K	200k
U.S.A. & CANADA	JUMPER	NEEDLESS	JUMPER	18K	120k

	R37,39	R206	R207	R208	R228
EUROPE & U.K.	20k	200	300	510	NEEDLESS
U.S.A. & CANADA	15k	JUMPER	200	NEEDLESS	2.2M

	R503	R504
EUROPE & U.K.	JUMPER	NEEDLESS
U.S.A. & CANADA	NEEDLESS	JUMPER

	C28	C30,31	C39,40
EUROPE & U.K.	22/16	510p	3900p
U.S.A. & CANADA	NEEDLESS	750p	NEEDLESS

	LF1	TR10,17	TR15,22	D1	D2~4,10,12,14~16	SW205,208
EUROPE & U.K.	NEED	2SC2712(Y/GR)	2SA1362(Y/GR)	1SS110	1SS270A	NEED
U.S.A. & CANADA	NEEDLESS	2SC2412(S)	2SA1037(S/R)	1SS135	1SS252	NEEDLESS

※ WHEN CONNECTING IC201 77PIN TO GND, TURN INTO U.S.A. & CANADA MODEL.
AND WHEN CONNECTING IC201 77PIN TO 5V, SET BY EUROPE & U.K MODEL.

racteristics.
ufacturer.

make either (1) a leakage current check or (2) a line to chassis resistance check. If the
e from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

is located and corrected.

or notice.

NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.